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ICONES

PLANTARUM INDIAE ORIENTALIS;

OR

Plates and Descriptions of new and rare Plants,

FROM SOUTHERN INDIA AND CEYLON.

BY

LT.-COL. R. H. BEDDOME,

CONSERVATOR OF FORESTS (MADRAS).



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**Vol. I.**

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CONTAINING 300 PLATES.

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MADRAS:

GANTZ BROTHERS,

1874.

SOLD BY J. VAN VOORST, PATERNOSTER ROW, LONDON.





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(*The Italics are synonyms.*)

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## RUBIACEÆ.

**HEDYOTIS BUXIFOLIA.** (Bedd. Linn. Trans. Vol. XXV.) A large shrub, branches terete, leaves short petioled, 4-6 lines long, 3 lines broad, ovate shining glabrous, very coriaceous, veinless, margins recurved; stipules broad sheathing, connate at the base, divided into filiform teeth, ciliate on the margins and with a line of hairs down the centre; peduncles terminal or in the upper axils  $\frac{1}{4}$  inch long, 3 flowered, flowers subsessile, bracts filiform ciliate, calyx cyathiform with 4 erect teeth, subsessile, coral villous in the mouth and on the segments, filaments included or exerted, anthers oblong, style longly exerted; capsule splitting into 2 bony cocci. Seeds numerous.

Anamallay Mountains, higher ranges.

### PLATE No. I.

**HEDYOTIS HIRSUTISSIMA.** (Bedd. Madras Journ. of Lit.) Shrubby, leaves  $1\frac{1}{2}$  to  $3\frac{1}{2}$  inch long by  $\frac{3}{4}$  to 1 inch broad, elliptic lanceolate to ovate lanceolate, mucronato-acuminate and attenuated into the petiole which is 2 lines to  $\frac{1}{2}$  an inch long, prominently veined, on both sides as well as the panicles densely adpresso-hirsute with yellowish hairs; stipules pectinately pinnatifid, very hairy, panicles axillary corymbiform, few flowered shorter than the leaves, bracts linear leaf-like, calyx deeply 4-cleft, segments lanceolate acuminate very hairy, corol tube long, very hairy outside and bearded within. Seeds numerous.

Nilgiri Mountains between Avalanche and Sisparah (7,000 ft.)

### PLATE No. II.

**HEDYOTIS ALBO-NERVA.** (Bedd.) Shrubby glabrous, leaves sub-membranaceous, pale beneath, slightly lineolate, lanceolate acuminate at both ends, 2-4 inches long (petiole  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch) about 1 inch broad, veins prominent; stipules broad-ovate deeply pinnatifid flowers sub-glomerate; peduncles axillary very short, pedicles numerous, very slender, 2-3 lines long; calyx with 4 erect acute lobes half the length or nearly as long as the corol; corol pilose within, anthers exerted and style included, or vice versâ.

In foliage much resembling *H. cinereo-viridis* (Thwaites), but the inflorescence and stipules are different.

Tinnevely Mountains (rare) 3,000 ft.

### PLATE No. III.

**HEDYOTIS VISCIDA.** (Bedd.) Shrubby glabrous, leaves ovate to lanceolate acuminate, 3-5 inches long 1 to  $1\frac{1}{2}$  broad; petioles  $\frac{1}{2}$  to 1 inch long; stipules ovate entire and very viscid as are the bracts; corymbs terminal and from the upper axils, calyx glabrous 4 parted, segments lanceolate acute erect both in flower and fruit; corol pilose within; cells of the ovary. 8 seeded.

A large handsome shrub—beds of rivers on the Tinnevely Mountains 3,000 feet.

### PLATE No. IV.

**HEDYOTIS PURPUREA.** (Bedd.) Shrubby glabrous, leaves lanceolate acuminate at both ends, 2 to  $3\frac{1}{2}$  inches long  $\frac{1}{2}$  to  $1\frac{1}{4}$  inch broad, stipules ovate entire, ending in a mucro or pectinate (but not deeply); panicles terminal corymbose calyx 4-cleft with the segments foliaceous erect and slightly enlarging in fruit; flowers, calyx and peduncles of a fine purple color, capsule elongate slightly ribbed crowned with the erect, very foliaceous segments of the calyx.

A very large shrub. Calcad Hills and elsewhere on the Tinnevely Mountains, the fine purple tint of the whole of the panicle makes it very conspicuous and showy.

### PLATE No. V.



**HEDYOTIS LENTIGINOSA.** (Bedd.) Herbaceous glabrous except the inflorescence and young parts, leaves lanceolate acuminate attenuated at both ends, 2-3 inches long by  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch broad; stipules pectinate with long filiform teeth; panicles terminal corymbose all the inflorescence and younger parts of stem, &c., covered with a minute dense yellowish pubescence, calyx segments 4 small more or less recurved.

Backwaters about Quilon and Trevandrum.

PLATE No. VI.

**HEDYOTIS TRAVANCORICA.** (Bedd.) Shrubby glabrous, leaves ovate-lanceolate about 1 inch long by  $\frac{1}{2}$  an inch broad, shortly petiolate; stipules lacerated densely hoary with matted scaly pubescence; peduncles axillary 1 flowered,  $\frac{1}{2}$  to  $\frac{3}{4}$  inch long, filiform solitary or 2-3 together, calyx 4 parted, segments erect with a long acumination.

Travancore and Tinnevely Mountains 3,000 to 4,000 feet elevation.

PLATE No. VII.

**HEDYOTIS QUINQUENERVIA.** (Thw.) Shrubby erect, branches compressed, leaves ovate 3-8 lines long coriaceous sub-glabrous, shortly and bluntly acuminate, 5 nerved subsessile margins revolute; stipules connate, cupuliform more or less lacerated into filiform teeth, externally pilose and setose; capituli terminal sessile, calyx 4 cleft, segments sub-acute ciliated, corol white, purple outside, pilose in the jaws, anthers oblong purple.

Ceylon Mountains 7—8,000 feet.

PLATE No. VIII.

**LASIANTHUS TRUNCATUS.** (Bedd.) Shrubby, ramuli terete and with the petioles slightly strigose, leaves (on petioles 2-3 lines long) narrow lanceolate about 5 inches long by  $1\frac{1}{2}$  broad ending in an acumination with a ciliated mucro; glabrous and shining above, strigose on the veins beneath, secondary veins numerous and parallel; stipules triangular acute strigose; flowers axillary sessile, solitary or two together; calyx cupuliform, truncated and sub-entire, and together with the corol strigose, corol tube elongate slightly recurved.

Myhendra Mountains near Berhampore (Ganjam District), elevation 4,500 feet.

PLATE No. IX.

**LASIANTHUS OBOVATUS.** (Bedd.) Shrubby glabrous ramuli terete, leaves (on petioles 2-3 lines long), obovate glabrous and shining  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inch long, secondary veins inconspicuous; stipules triangular; capituli sessile few flowered, calyx segments ovate, corol tube short, very villous inside.

On the Athraymallay, Travancore Mountains 5,000 feet

PLATE No. X.

**LASIANTHUS OBLONGIFOLIUS.** (Bedd.) Shrubby, ramuli terete glabrous, leaves 6-7 inches long (of which the petiole is about  $\frac{1}{2}$  an inch) by 2 inches broad, oblong with a sudden long narrow acumination, glabrous above, slightly strigose on the costa and primary veins beneath and on the terminal acumination, very prominently veined, secondary veins parallel, tertiary very numerous and prominent; stipules triangular and with the petioles and inflorescence strigose; capituli sub-sessile, 2-5 flowered, calyx segments lanceolate acute, corol tube very short.

Panpanassum Hills (Tinnevely) 3—4,000 feet elevation.

PLATE No. XI.

**LASIANTHUS JACKIANUS.** (Wight.) Shrubby; clothed with long yellow hairs which spring from enlarged bases, branches terete, internodes short; stipules triangular short broad at the base, glabrous within; leaves subsessile, ovate lanceolate shortly and abruptly acuminate, 4-5 inches long  $1\frac{1}{2}$  broad; flowers axillary subsessile aggregated 3-4 supported by 2 foliaceous lanceolate bracteas which are  $\frac{1}{2}$  to  $1\frac{1}{4}$  inches long; calyx deeply 4-cleft, divisions ovate lanceolate, hairy on both sides; corol about the length of the calyx, glabrous within, lobes ciliate; ovary 3-5 celled, stigma 3-5 lobed, dupe small. *Mephitidea Jackiana* (Wight.)

Sisparah Ghat (Nilgiris.)

PLATE No. XII.

**LASIANTHUS DICHOTOMUS.** (Wight.) Shrubby, branches glabrous, terete except at the joints which are compressed; leaves short petioled, elliptic ovate or slightly cordate at the base, cuspidate glabrous except the short petiole and a few scattered hairs on the veins, stipules lanceolate about the length of the petiole pointed; cymes axillary solitary longish peduncled, once or twice dichotomous, divisions racemose, flowers secund, bracteas subulate sprinkled with bristly hairs; calyx deeply 4-cleft, divisions lanceolate acute often tipped with a tuft of bristly hairs, about the length of the tube of the corol; corol funnel-shaped, 4-cleft throat and laciniae hairy, stamens 3-4 included, style exserted. Stigma 3-4 lobed, ovary 3-4 celled. *Mephitidea dichotoma*. (Wight.)

Shevagherri and Courtallum Hills.

PLATE No. XIII.

**SERISSA FRAGRANS.** (Bedd.) Shrub; 10-12 feet, branches dichotomous, leaves glabrous, penninervous oblong to oblongo-lanceolate acuminate, attenuated at the base 3-4 inches long  $1\frac{1}{2}$ -2 inches broad, petioles 3 lines long; stipules entire or toothed, peduncles terminal very short bracteolate, pedicels 1-5, ebracteolate about 2 lines long, calyx cup-shaped sub-entire or slightly 4-lobed, ebracteolate at the base; corol infundibuliform, tube very long, minutely papillose on the outside, slightly villous within; stigma 2-lobed lobes elongate, fruit oblong.

Western slopes of the Nilgiris. A handsome shrub, with deliciously fragrant large flowers; the stems and leaves are very fetid when crushed as in the other species.

PLATE No. XIV.

**SERISSA WIGHTII.** (Gardn.) Shrub, 8-12 feet and more, branches terete dichotomous, leaves glabrous penninervous, lanceolate acuminate, attenuated at the base 3-3 $\frac{1}{2}$  inch long, 10-15 lines broad, petioles  $\frac{1}{2}$  an inch, stipules connate toothed, peduncles 1 flowered, axillary or terminal 4 lines long, bibracteolate a little above the base and at the apex; calyx tube obovate adherent glabrous ebracteolate at the base, limb 4-toothed, teeth broad acute, corol purplish infundibuliform very minutely papillose on the outside, about 6 lines long, deeply 4 cleft, stamens included or very slightly exserted, fruit obovate to oblong, deep blue, very fetid. *Lasianthus*? *fœtens*. Wight.; *Dysodidendron*. Wightii. Gardn.

In moist woods Nilgiris 6,000 feet, Anamallays 4,000 feet, Coimbatore hills 3,000 feet, Tinnevely hills 3,000—(my specimens from the Tinnevely hills are much smaller leaved) a large shrub or small tree.

PLATE No. XV.

**SERISSA GLOMERATA.** (Gardn.) Shrub 3-4 feet, branches terete dichotomous, leaves glabrous ovate or elliptic acuminate subsessile  $1\frac{1}{2}$ -4 $\frac{1}{2}$  inch long,  $\frac{1}{2}$ -2 inches broad, penninervous; stipules connate entire or toothed, flowers few terminal subsessile, calyx with 4-5 acute lobes, corol white infundibuliform 2-3 lines long, anthers included 4-5. Stigma with 2 flattened lobes, fruit globose, deep blue, very fetid as is the whole plant. *Dysodidendron glomeratum*. Gardn. *Saprosma Indica*. Dalz;—*Serissa Gardneri*. Thw.

Very common in the moist forests of all the Western part of the Madras Presidency at an elevation of 2,000 to 4,000 feet.

PLATE No. XVI.

**SERISSA CORYMBOSA.** (Bedd.) Shrub, branches 4 angled, leaves glabrous elliptic acuminate 3-6 inches long, 1 to 2 $\frac{1}{2}$  broad, penninervous petioles,  $\frac{1}{4}$  to  $\frac{1}{2}$  an inch long; stipules connate toothed, panicles terminal and axillary, 2-3 inches long, dichotomously branched bracteolate at the ramifications; calyx bracteolate at the base, 4-lobed or sub-entire; corol tube 3 lines long papillose on the outside, hairy within, obsoletely induplicate, anthers on longish filaments considerably exserted. Stigma with two flattened lobes.

Tinnevely Hills, south of Courtallum. The induplication of the lobes of the corol so conspicuous in the other species is present in a minute membranaceous fold, which however does not apparently expand, and is scarcely visible without a lens.

PLATE No. XVII.

**NAUCLEA TUBULOSA.** (Arnt.) A small tree, leaves glabrous (except the nerves of the young ones which are slightly puberulous) sub-membranaceous, minutely reticulated, ovate obtuse or slightly acuminate, rounded or sub-cordate at the base, 2-6 inch long, petioles 4-6 lines long, stipules large membranaceous obovate; peduncles terminal, generally 3; the intermediate one short or sessile, capitula about  $\frac{1}{2}$  inch in diameter, calyx cylindrical sub-entire 1 to  $1\frac{1}{2}$  lines long, bracteoles obtuse, corol purple, anthers apiculate, stigma long truncated, capsule large oblong, many seeded.

Ceylon.

PLATE No. XVIII.

**NAUCLEA ELLIPTICA.** (Dalz.) A large tree, leaves elliptic acuminate at both ends, glabrous shining coriaceous about 6 inches long, 2 to 3 broad, minutely reticulated; stipules large foliaceous triangular; peduncles axillary and terminal solitary,  $2-2\frac{1}{2}$  in long, capitula about 1 inch in diameter, calyx divisions subulate hairy, corol yellowish white, tubular wider upwards,  $4\frac{1}{2}$  lines long, divisions short, oval obtuse with a mucro, style much exserted. Stigma globose.

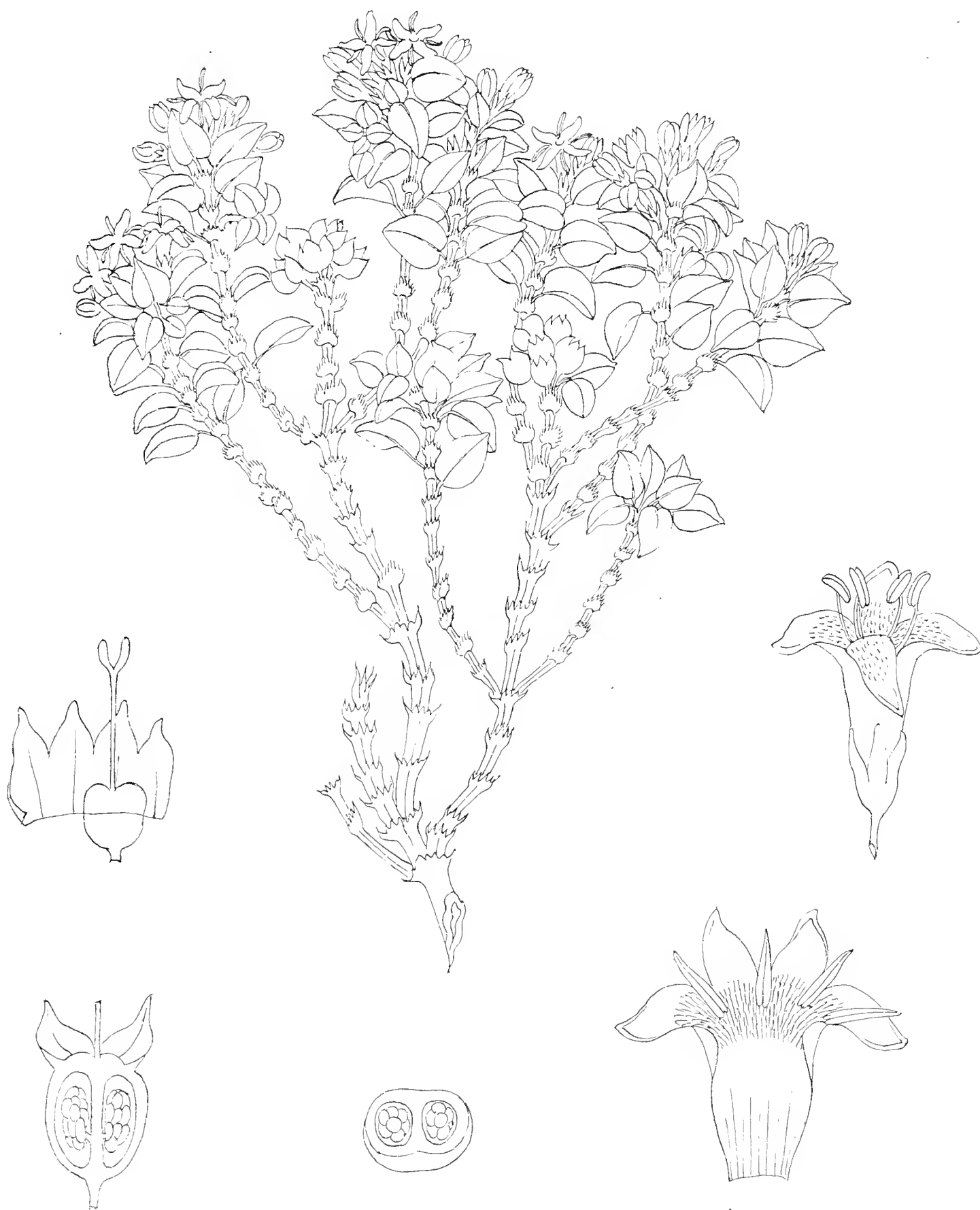
South Canara, Malabar and Bombay ghats.

PLATE No. XIX.

**GARDENIA TETRANDRA.** (Bedd.) Shrub unarmed glabrous, leaves oblong slightly attenuated at the base, perfectly rounded at the apex, dark green and shining above and prominently veined, pale beneath and veins inconspicuous, 2-5 inches long, 1-2 inches broad, petioles  $\frac{1}{2}$  to 1 inch long; stipules connate caducous; peduncles terminal, 1—several flowered with 2 large foliaceous bracts at the base, pedicles bracteolate, bracteoles sheathing or connate; calyx tubular, limb truncate sub-entire, corol with a long tube swollen at the apex, 4 cleft (white tinged with rose), hairy within the jaws, stamens 4 attached by a very short filament at the back; stigma clavate elongate, fruit size of a cherry smooth globose.

Travancore mountains (Athraymallay), lately discovered by Captain Davidson, Nair Brigade.

PLATE No. XX.



*Hedyotis buxifolia* (Bedd.)

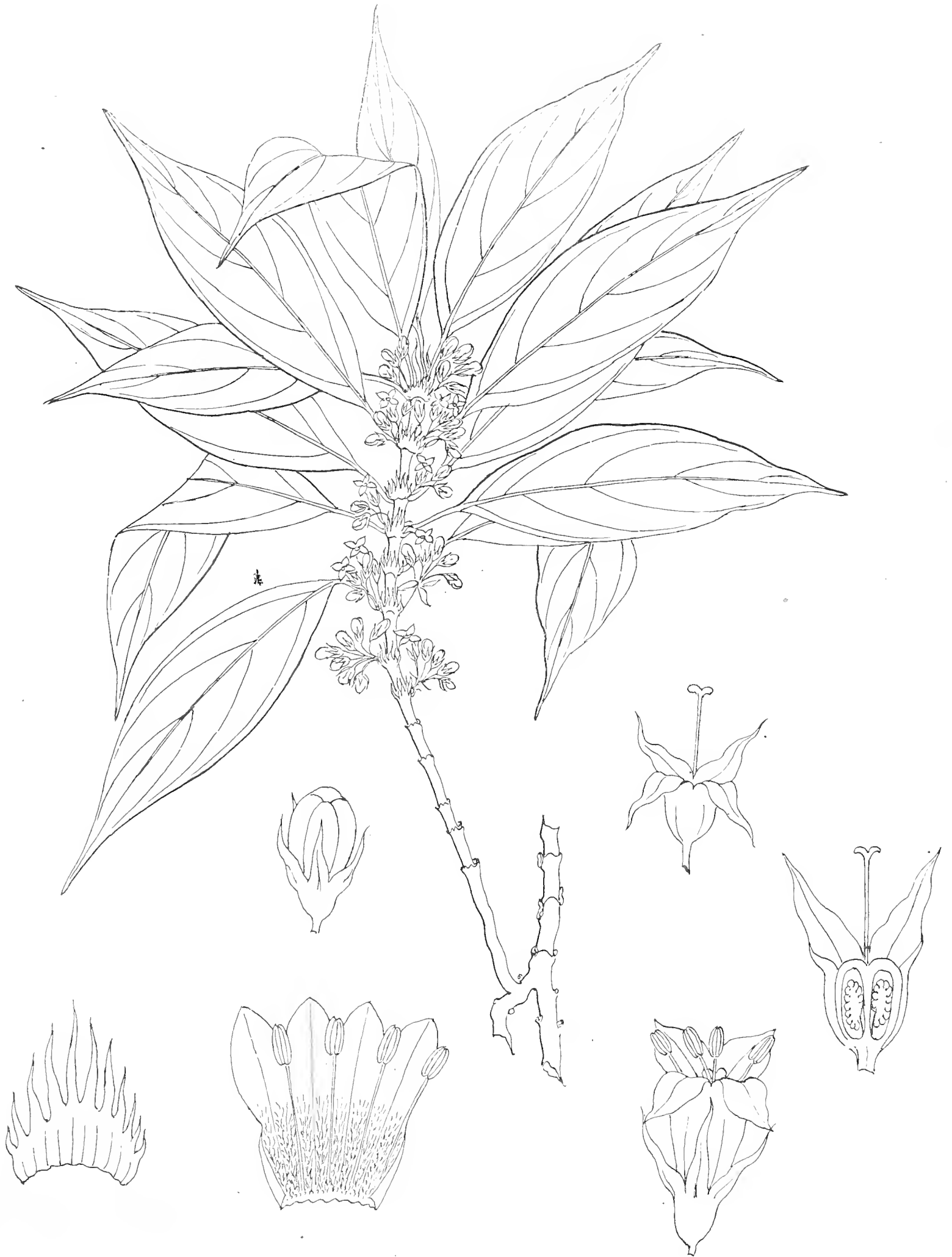






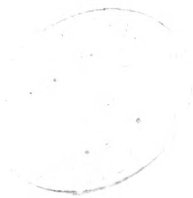
*Hedyotis hirsutissima* (Bedd.)





*Hedyotis albo-nerva* (Bedd.)











*Hedyotis lentiginosa* (Bedd.)







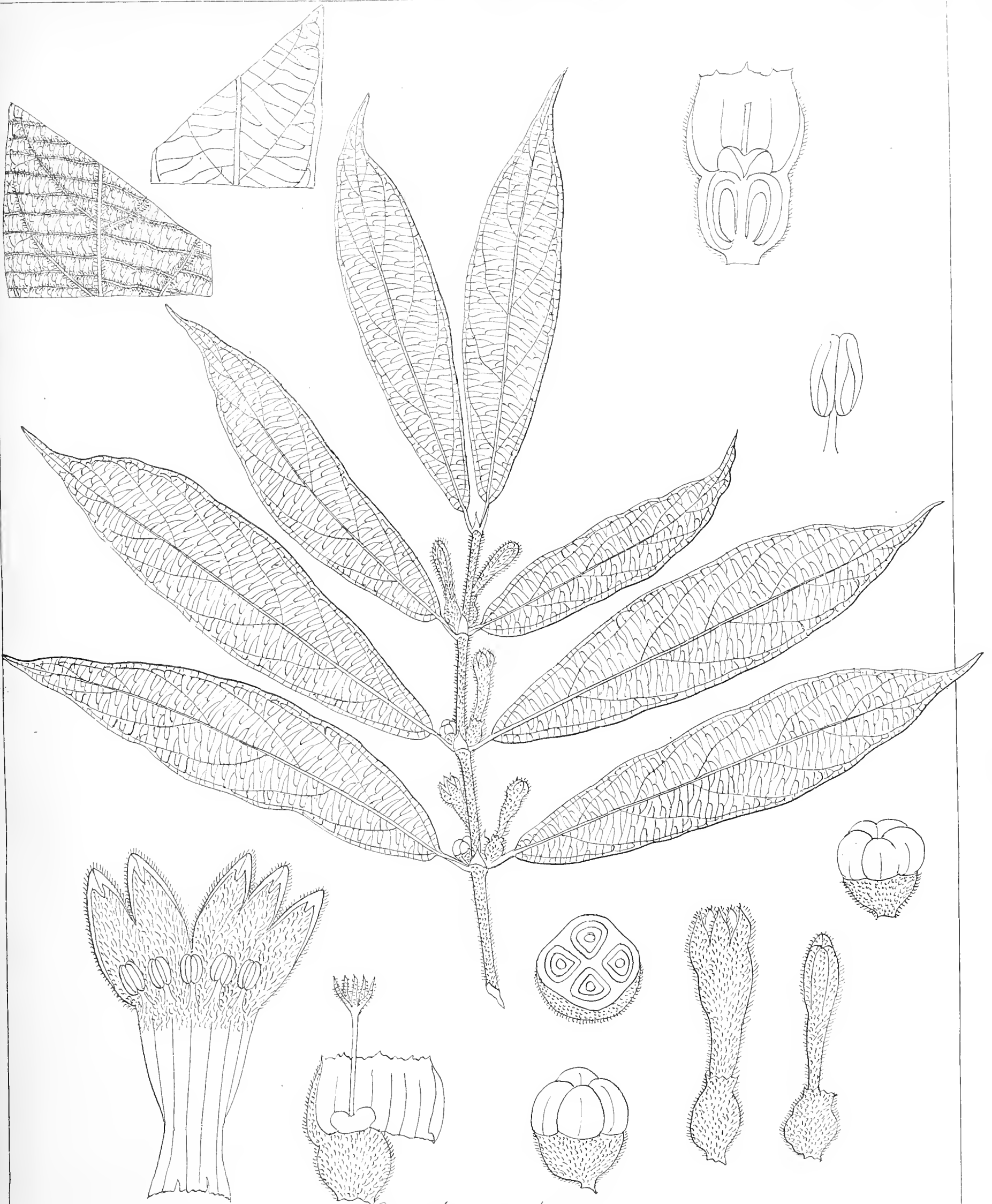
*Hedysotis Travancorica* (Bedd.)





*Hedyotis quinquenervia* (Thunb.)

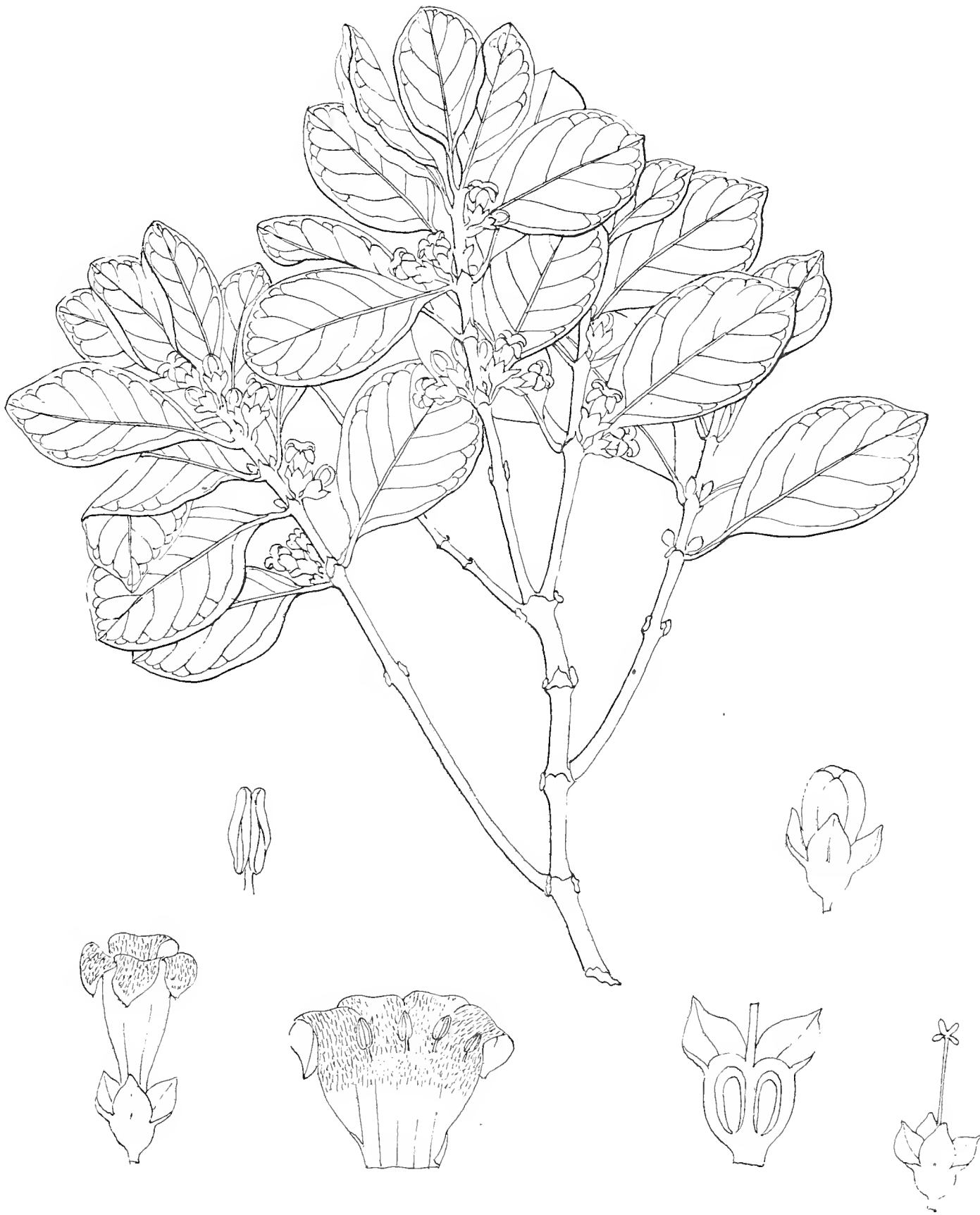




*Lasianthus truncatus* (Rydb.)

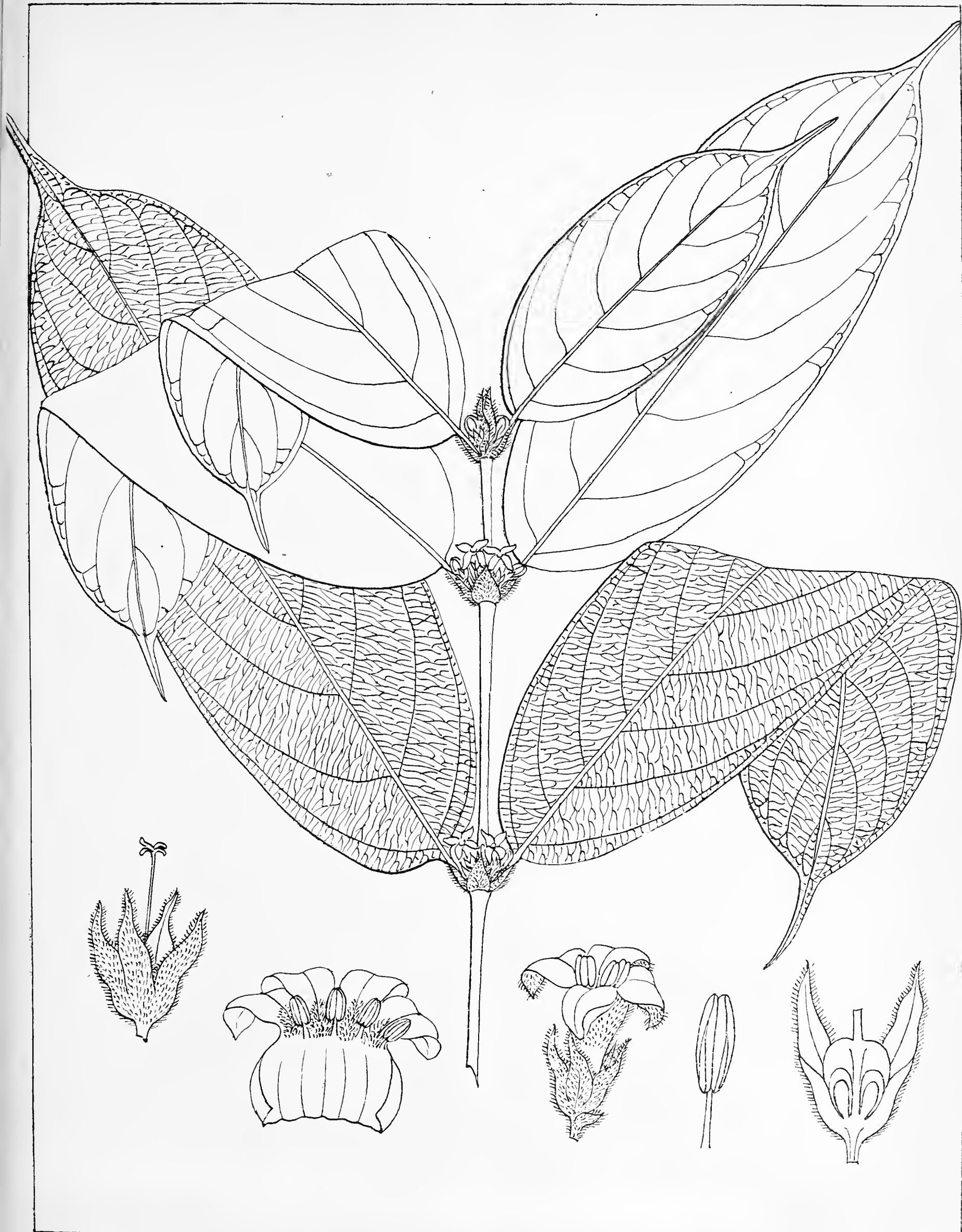




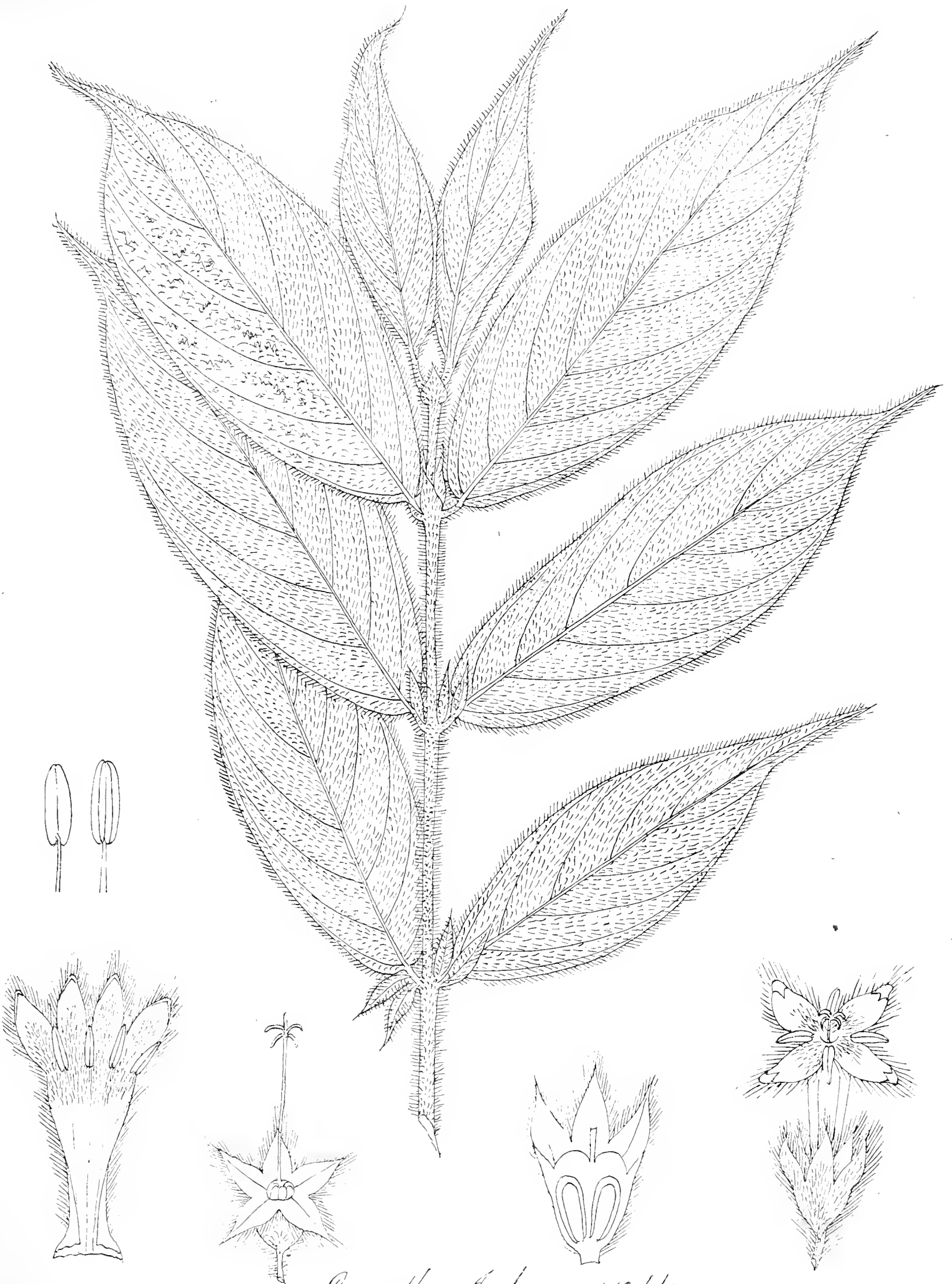


*Lasianthus obovatus* (Bedd.)





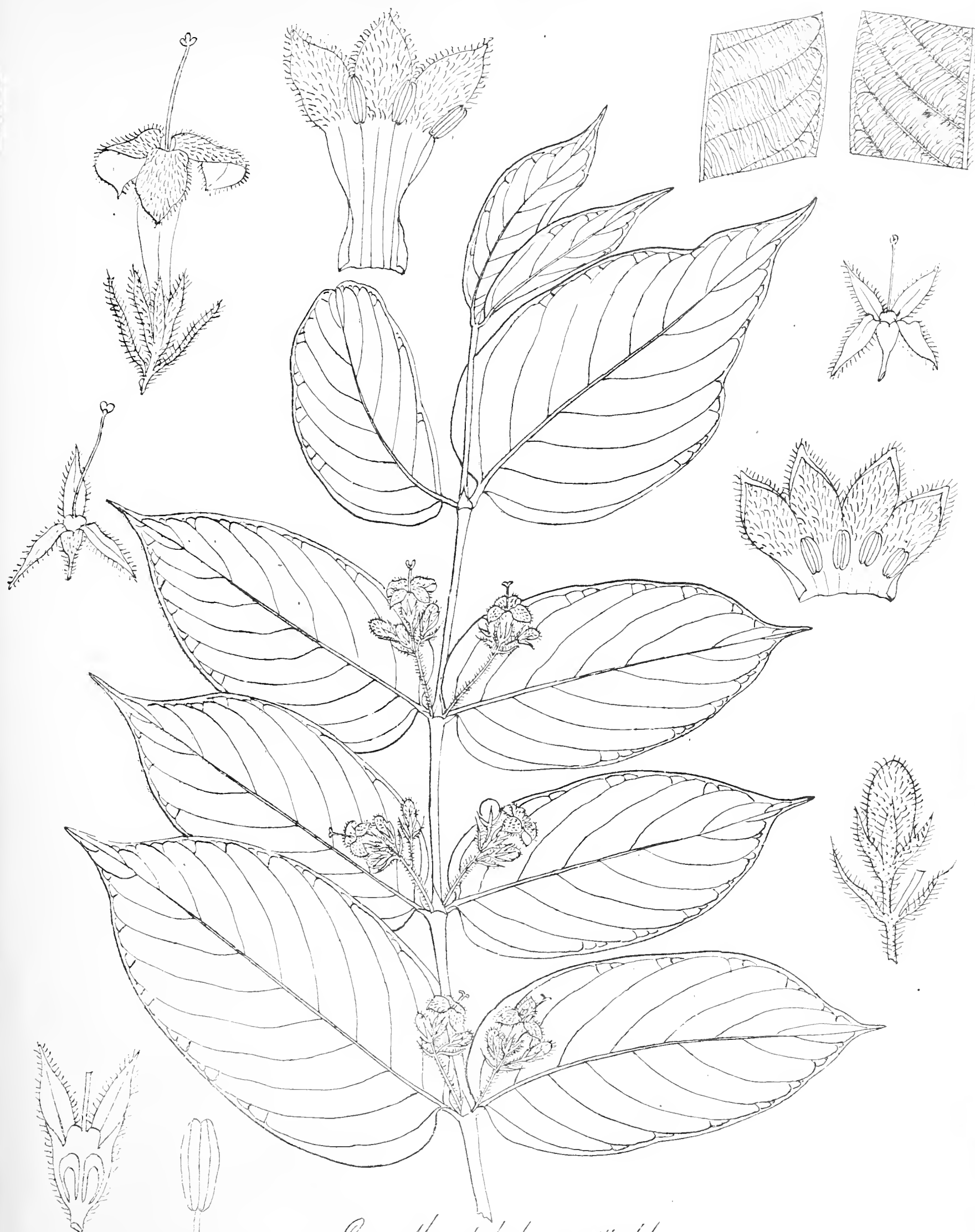




*Lasianthus Jackianus* (Wight.)







*Lasianthus dichotomus* (Wight.)





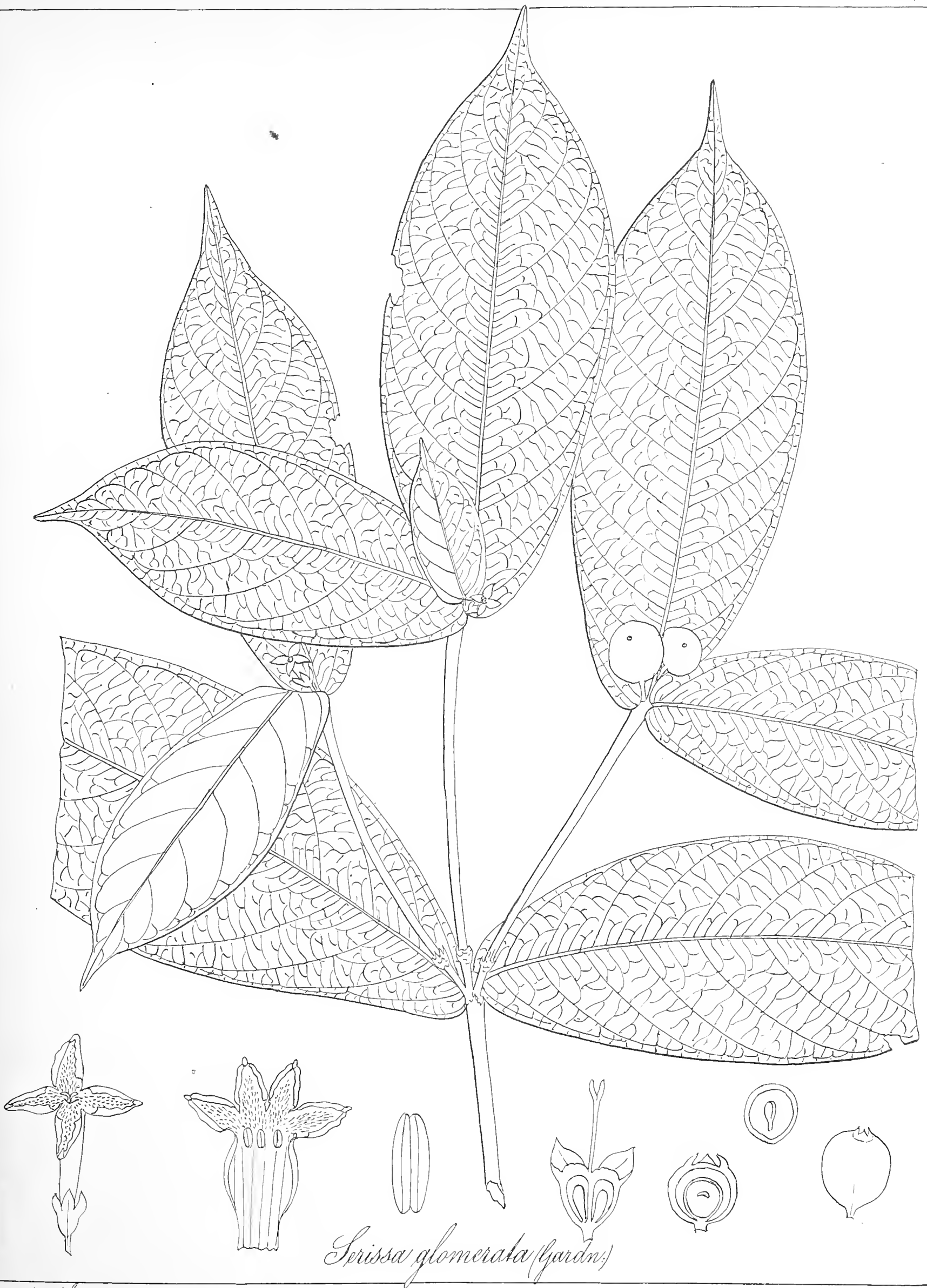
*Serissa fragrans* (Bedd.)











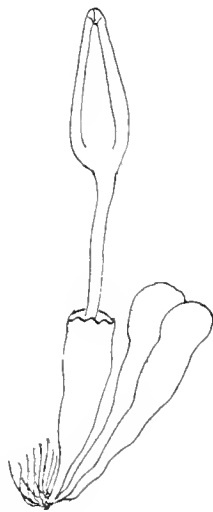
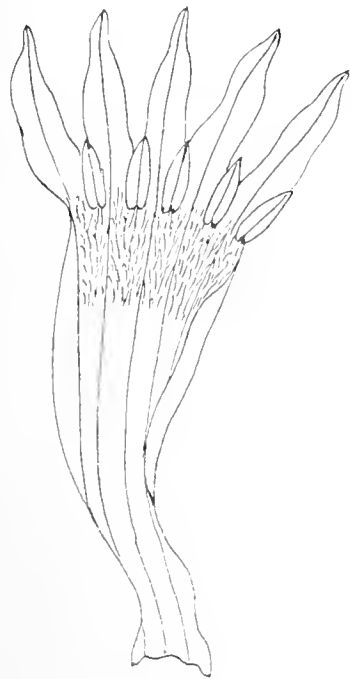
*Serissa glomerata* (Gardn.)





*Serissa corymbosa* (Bedd.)





*Nandea tubulosa* (Arn.)







Govindoo, del.

*Nandea elliptica* (Daly.)

Dumphy, lith.





*Gardenia lebrandra* (Redd.)

Govindoo, del.

Murphy lith.



## RUBIACEÆ.

**LASIANTHUS ACUMINATUS.** (Wight.) Shrubby branches terete pubescent; stipules short subulate pubescent; leaves coriaceous shining, except the slightly pubescent nerves, lanceolate acuminate at both ends, mucronately cuspidate at the apex,  $2\frac{1}{2}$  to  $4\frac{1}{2}$  inches long,  $\frac{3}{4}$  to  $1\frac{1}{2}$  inches broad; flowers axillary subsessile 2—3 together, bracts inconspicuous, calyx hairy 4 cleft, segments triangular; corol tubular 4 cleft glabrous, hairy within, style equalling the tube or slightly exserted stigma 3—5 cleft, ovary 3-5 celled. (Wight.)

Pulney Hills, in sholas at Kodinkarnal and elsewhere on the higher ranges, (7,000 feet.)

## PLATE No. XXI.

**LASIANTHUS BLUMIANUS.** (Wight.) Shrubby glabrous branches terete; stipules short triangular pointed slightly hairy; leaves glabrous short petioled elliptic lanceolate ending in a long acumination; flowers aggregated few, bracts short subulate hairy, calyx limb deeply 4-cleft, divisions lanceolate acute persistent glabrous except a slight tuft of hairs at the apex, corol 4-cleft hairy within, stamens 4 subsessile in the throat, ovary 4-celled, style equalling the corol stigma hairy 4-cleft; drupe globose. (Wight.)

Courtallum Mountains (3,500 feet elevation.)

## PLATE No. XXII.

**ACRANTHERA ANAMALLICA.** (Bedd.) Herbaceous, leaves petioled obovato-spathulate attenuated at the base, rounded at the apex and furnished with an inconspicuous mucro, up to 7 inches long (of which the petiole is nearly 1 inch) by 2 broad near the apex, ciliate and furnished with a few scattered hairs on the upper side, densely hairy on all the veins beneath but glabrous in between; stipules undivided triangular ovate acute, flowers congested towards the apex, peduncles very short, furnished with a few small linear bracts and each bearing 3—5 pedicelled flowers, calyx cup-shaped, segments short obovate glabrous within, very hairy on the outside, with a small yellow gland in each sinus; corol infundibuliform about  $1\frac{1}{2}$  inches long, slightly hairy on the outside, connectivum scarcely produced beyond the anther cells, style a little longer than the filaments, stigma clavate verrucose; ovary pseudo-bilocular, dissepiments opposite but not joined in the axis, seed very numerous papillose.

Anamallays: banks of streams in moist woods at about 4,000 feet elevation, not observed elsewhere. A low very showy plant, with numerous thick wiry roots, some of which often proceed from the stem above the lower leaves; flowers of a very deep blue.

## PLATE No. XXIII.

**ACRANTHERA ZEYLANICA.** (Arnt.) Herbaceous, leaves petioled oblongo-obovate obtuse, furnished above with a few rather rigid hairs and densely hairy on the veins beneath, calyx tube oblongo-turbinate, segments linear erect not furnished with glands, corol densely hairy on the outside about 1 inch long, connectivum apiculate and produced far beyond the anther cells.—*Arnt. in Ann. of Nat. Hist.* iii. p. 21. *Endl. Suppl.* i. p. 1394.

Ceylon, on shady banks in the Central Provinces at 3,000 to 5,000 feet elevation.

## PLATE No. XXIV.

**ACRANTHERA GRANDIFLORA.** (Bedd.) Herbaceous, leaves petioled obovato-oblong, retuse or sub-mucronate up to 10—12 inches long (petiole scarcely 1 inch) by 3 broad, furnished with a few scattered weak hairs or nearly glabrous above except the midrib, densely villous with matted woolly hairs on the veins beneath; stipules broad connate; peduncles axillary and terminal up to 3 inches long corymbiform, calyx with a pair of bracts near the base of the tube, segments long linear erect without glands, corol, infundibuliform about 3 inches long, densely lanate on the outside, connectivum apiculate and produced far beyond the anther cells, stigma clavate verrucose sub-bilobed at the apex.

Tinnevely Mountains, south of Courtallum in moist forests 2,000 to 3,000 feet elevation—flower pale blue turning white.

## PLATE No. XXV.

**HEDYOTIS NUMMULARIA.** (Arnt.) Herbaceous diffuse stems 4-sided hirsute clongate, leaves subsessile orbicular-ovate, densely hirsute on both sides with jointed hairs, or glabrous, 3-10 lines long and about the same in breadth, margins often revolute; stipules inconspicuous; flowers subcapitate, capituli terminal pedunculate, calyx segments lanceolate, corol infundibuliform purple anthers exserted.—(Arnt. Pug. 23 (341); Walp. Rep. 11. p. 492.)

Vary *a* hirsuta—leaves densely hirsute.

Vary *β* glabra—leaves glabrous, *H. nummulari formis* Arnt. l. c.—Walp. l. c. p. 493.

Ceylon, Central Provinces, wet rocky places 5,000 to 8,000 feet elevation.

PLATE No. XXVI.

**HEDYOTIS AURICULARIA.** (L.) Stems 4-angled, hirsute towards the extremities and under the joints; leaves short petioled or subsessile, ovate lanceolate acute glabrous, 2 to  $4\frac{1}{2}$  long,  $\frac{3}{4}$  to  $1\frac{1}{2}$  inches broad, under-side strongly marked with the prominent more or less pubescent nerves; stipules with several bristles; flowers axillary nearly sessile crowded and somewhat verticillate, scarcely exceeding the stipules, calyx limb 4-partite, segments in fruit spreading with the sinus scarcely acute, corol short tubular, tube scarcely exceeding the calyx segments; capsule spherical glabrous crowned with the spreading lanceolate calyx segments, hard and nut-like indehiscent. *W. A. Prod. p.* 412—*H. hirsuta*; *Lam. Enc. Meth.* 3. p. 79—*Rheede. Mal.* 10. t. 32.

Malabar, South Canara, and all the western forests up to 3,000 feet elevation. Ceylon, common. In Ceylon the leaves are chopped up, boiled and eaten by the natives with their rice.

PLATE No. XXVII.

**HEDYOTIS QUADRILOCULARIS.** (Thw.) Herbaceous, procumbent ramous slightly pilose, stems subterete; leaves membranaceous ovato-lanceolate petiolate,  $\frac{1}{2}$  to  $1\frac{1}{2}$  inches long,  $\frac{1}{4}$  to  $\frac{3}{4}$  inch broad, petiole 1-5 lines long; stipules membranaceous rotundate ciliate; flowers axillary or terminal sessile, calyx turbinate lobes oblong ciliate subpilose recurved, corol infundibuliform, glabrous inside, lobes oblong acute, anthers sessile, style filiform exserted, stigmas as many as the cells of the ovary long subclavate reflexed; ovary 4-celled rarely 2-3 celled; capsule depressed, cells several seeded. *Thw. En. Pl. Zey.* p. 144.

Ceylon, Badulla District rare.

PLATE No. XXVIII.

**HEDYOTIS TRINERVIA.** (Roem and Sch.) Herbaceous, branched procumbent, rooting near the base, stems slender from glabrous to slightly hairy, leaves petioled roundish ovate or oval glabrous sprinkled with a few hairs on the margin, up to  $\frac{1}{2}$  an inch long and nearly as broad, somewhat 3-nerved; stipules slightly hairy, bipartite; segments acuminate; flowers shortly pedicelled, usually in pairs 1-4 in the axils of the leaves; corol rotate 4-partite glabrous within, tube scarcely any; capsule hirsutely villous crowned with the remote calycine teeth. *Roem. and Schult.* 3. p. 197;—*W. A. Prod. p.* 414;—*H. serpyllifolia. Poir*;—*H. orbiculata Wall.*;—*Oldenlandia trinervia, Retz.*;—*O. repens, Burm.*

Not uncommon in damp places in the plains throughout the Presidency. Wight says the same plant is found in the Mauritius.

PLATE No. XXIX.

**HEDYOTIS CÆRULEA.** (W.A.) Annual branched from the root diffuse; leaves setaceous bristle-pointed; up to  $\frac{1}{2}$  an inch long and with the stems minutely hairy, stipules with several bristles; flowers nearly sessile, arranged in axillary or terminal peduncled, sparingly dichotomous leafy corymbs; lower ones solitary in the forkings of the corymbs, upper ones approximated and somewhat capitate; capsule glabrous nearly globose, crowned with the rigid lanceolate erect calyx segments, dry dehiscing at the apex within the calyx transversely to the dissepiment. *W. A. Prod. p.* 412.

From the plains up to 6,000 feet, not uncommon. Brumagherries, Pulney Hills, South Canara Ghats, Denkinacottah, Tanjore district.

PLATE No. XXX.

**HEDYOTIS LESSERTIANA.** (Arnt). Shrubby, glabrous, branches compressed, leaves oblongo-lanceolate acuminate petioled rigid, veins simple, very prominent beneath; stipules, marcescent, lower ones sheathing tubular with a few teeth at the apex, upper ones triangular scarious; panicles corymbiform, peduncles elongate, pedicels shorter than the calyx; calyx cupulate 4-toothed, corol without subpuberulous, villous in the jaws; capsule oblong obovate dioecious. *Arnt. Pug. 22 (339)—Walp. Rep. 11. p. 492.*

Anamallay Mountains (higher ranges.) Ceylon 3,000 to 8,000 feet. A very variable plant in regard to the size of the leaves and the inflorescence, the latter being sometimes rather lax as in the plate and in other forms densely conferted. Mr. Thwaites mentions four varieties from Ceylon, but says they merge insensibly into one another.

PLATE No. XXXI.

**HEDYOTIS ASPERA.** (Heyne). Annual erect simple or with a few straight simple erect branches, all over rough with minute points: leaves linear acuminate; stipules membranous, with 1-3 longish subulate points; cymes terminal long peduncled, usually of one short central branch and two longish lateral ones; flowers usually in pairs, shortly pedicelled with or without a short partial peduncle, racemously and rather distantly arranged along the branches of the cyme; calyx-teeth approximated during flowering, in fruit distant with the sinus wide; corol long infundibuliform, anthers included; capsule nearly globose, somewhat didymous truncated. *Heyne in Roth. Nov. Sp. p. 94;—W. A. Prod. p. 417. Oldenlandia aspera. D. C. prod. 4. p. 428.*

Anamallay Mountains, Dindigul hills, Arcot, Coimbatore and elsewhere. The plant figured is the mountain form (Anamallays 4,000 feet) and is much larger flowered than the form abundant in the plains about Coimbatore.

PLATE No. XXXII.

**HEDYOTIS HEYNEL.** (Br.) Annual or biennial, erect or decumbent with erect branches, dichotomous glabrous, stems sometimes terete at the base above and the branches acutely 4-angled; leaves linear or linear lanceolate; stipules with several short bristles or often truncate and naked; pedicels slender 1-flowered axillary solitary or in pairs in the opposite or alternate axils, from shorter to a little longer than the leaves 4-8 times longer than the fruit; calyx segments in fruit distant with the sinus wide, from triangular-acuminate and small to oblong-lanceolate and elongated; corol infundibuliform, anthers somewhat included; capsule roundish-ovate gibbous at the base crustaceous, opening with a very elevated compressed widely dehiscient ridge across the apex, lips of the opening erect, flowers bluish or white.—*Br. in Wall. L. n. 867—W. A. Prod. p. 416;—H. herbacea, Willd. (not Linn.); Rheed. Mal. 10. t. 23.*

Anamallay forests up to 3,000 feet and many other localities on the western side of the Presidency. Very similar to *H. dichotoma*, but a more delicate plant.

PLATE No. XXXIII.

**HEDYOTIS NUDICAULIS.** (W. A.) Annual with a filiform root; leaves 4-5 all radical roundish ovate, slightly attenuated at the base, sessile sprinkled with short hairs particularly on the margin and nerves underneath, scapes 2-3 slender scabrous from close short fuscous hairs, bearing each about the middle a lax corymbose spreading 3-4 dichotomous panicle, pedicels bristle-shaped glabrous; corolla with a very short tube bearded in the throat with white hairs; capsule somewhat globose; *W. and A. prod. p. 416; H. scapigera, Br. ? in Wall. L. n. 881.*

Anamallay forests up to 2,500 feet elevation. Wynad, Pulney Hills, &c.

PLATE XXXIV.

**HEDYOTIS CYMOSA.** (Thw.) Shrubby erect (turning black in drying) ramuli slightly angled; leaves glabrous, shining, narrow lanceolate, acute at both ends, 2-3 inches long 3-7 lines broad, primary veins inconspicuous, stipules triangular with a longish acuminate carinate, glandularly dentate on the margin, cymes terminal, lax, puberulous, calyx glabrous, 4 partite, segments lanceolate acute at length recurved, corol externally glabrous, pilose in the jaws.—*Thw. En. Pl. Zey. p. 142.*

Ceylon, at an elevation of 1,000 feet.

PLATE XXXV.

**HEDYOTIS GLABELLA.** (Br. ?) Stems acutely 4-angled, glabrous except near the joints, leaves oblongo-lanceolate to linear lanceolate, short petioled, or subsessile, shining above but scabrous at and near the margin, at length often quite glabrous, margins often recurved, glabrous and pale colored beneath and veins often not visible; stipules with about 6 filiform ciliated teeth nearly as long as the flowers; flowers solitary or in pairs in the axils of the leaves, calyx segments ciliate triangular, erect in flower and fruit, segments of the corol ciliated at the apex, stamens and style exerted; capsule oblong with 2 hard bony cocci indehiscent. *Brown in Wall. L. n. 886 ?—H. hispida, Heyne ?*

Anamallay teak forests and other localities in the western side of the Presidency.

PLATE XXXVI.

NOTE.—Mr. Bentham separates *Oldenlandia* from *Hedyotis* on account of its loculicidal dehiscence. Of the above species, *quadrilocularis*, *trinervia*, *carulea*, *aspera*, *Heynei* and *nudicaulis*, belong to *Oldenlandia*.



**GRIFFITHIA SPECIOSA.** (Bedd.) Scandent unarmed branches terete, slightly hairy at the joints under the stipules ; leaves glabrous shining broad ovato-lanceolate up to 10 inches long by 4 broad, acuminate, attenuated at the base, petioles nearly 1 inch long ; stipules triangular glabrous caducous, corymbs leaf opposed (alternate with pairs of leaves) much shorter than the leaves, peduncles up to  $\frac{1}{2}$  an inch long, pedicels elongate bracteolate at the base, calyx truncated and with the peduncles and pedicels slightly pilose (splitting like a spathe) furnished with 5 small teeth at the apex, corol glabrous outside, hairy in the jaws, cream colored, up to  $1\frac{1}{2}$  inch in diameter, anthers subsessile, stigma clavate muriculate ; berry subglobose, 6-8 lines in diameter.

Western slopes of the Neilgherries (up to 4,500 feet). Coorg, South Canara, Travancore, &c. A very handsome creeper with large fragrant flowers. *Mr. Benth* unites the genus *Griffithia* with *Randia*.

PLATE No. XXXVII.

**GRIFFITHIA GARDNERI.** (Thw.) A small tree 15-20 feet, unarmed, branches terete, a little compressed ; leaves glabrous shining lanceolate acuminate narrow at the base, petiolate  $2-4\frac{1}{2}$  inches long  $\frac{3}{4}-1\frac{1}{2}$  inches broad, petioles 2-3 lines long ; corymbs axillary shorter than the leaves, shortly peduncled sparingly pilose, at length glabrous, pedicels elongate, bracteoles small, calyx truncated slightly 5-toothed, externally slightly pilose or glabrous, corol externally subglabrous pilose in the jaws within, lobes linear lanceolate 4 lines long ; yellow, tube 2 lines long ; placenta 8-12 ovuled, berry subglobose 4-5 lines in diameter. *Th. En. Pl. Zey. p. 158.* *Stylocoryne* Ceylonica. *Gard. MSS.*

Ceylon, Central Provinces 2,000 to 4,000 feet elevation.

PLATE No. XXXVIII.

**BORRERIA TETRACocca.** (Thw.) Herbaceous procumbent, branches elongate acutely 4-angled slightly compressed, rooting at the joints and with numerous small lateral branchlets ; leaves lanceolate subsessile scabrous ; stipules lanceolate densely hispidociliate on the margins and dorsal nerve ; flowers small axillary 2-3, calyx hispid with 4 lanceolate teeth, one of which is sometimes bifid, corol tube longish, segments ciliated at the apex and in the jaws, ovary 4-celled, cells one-seeded, stigma bifid pilose. *Thw. En. Pl. Zey : p. 442.*

Foot of the Sampajee Ghat, Coorg—Ceylon.

NOTE.—*Mr. Benth* unites the genus *Borreria* with *Spermacoce*.

PLATE No. XXXIX.

**DISCOSPERMUM APIOCARPUM.** (Dalz. ?) A tree, polygamo-diœceous, branches subtetragonal, leaves glabrous ovato-lanceolate with a blunt acumination up to 6-7 inches long (of which the petiole is  $\frac{1}{2}$  an inch) by 2-3 inches broad, furnished with hollow hairy glands in the axils of the veins beneath ; stipules triangular glabrous ; flowers male and hermaphrodite on different trees, peduncles very short (2 lines), axillary each with 3-8 subsessile flowers, calyx urceolate entire or minutely toothed or fimbriated at the apex and furnished with a sticky gumlike substance (as are the stipules), glabrous or with a few weak hairs on the outside, corol yellowish fragrant (similar in both male and hermaphrodite), tube short segments spreading glabrous or with a few weak hairs on the outside, hairy within at the insertion of the filaments, anthers on longish filaments which are hairy at the base, stigma with 2 spreading flattish lobes ; cells of the ovary 4-seeded ; berry ?

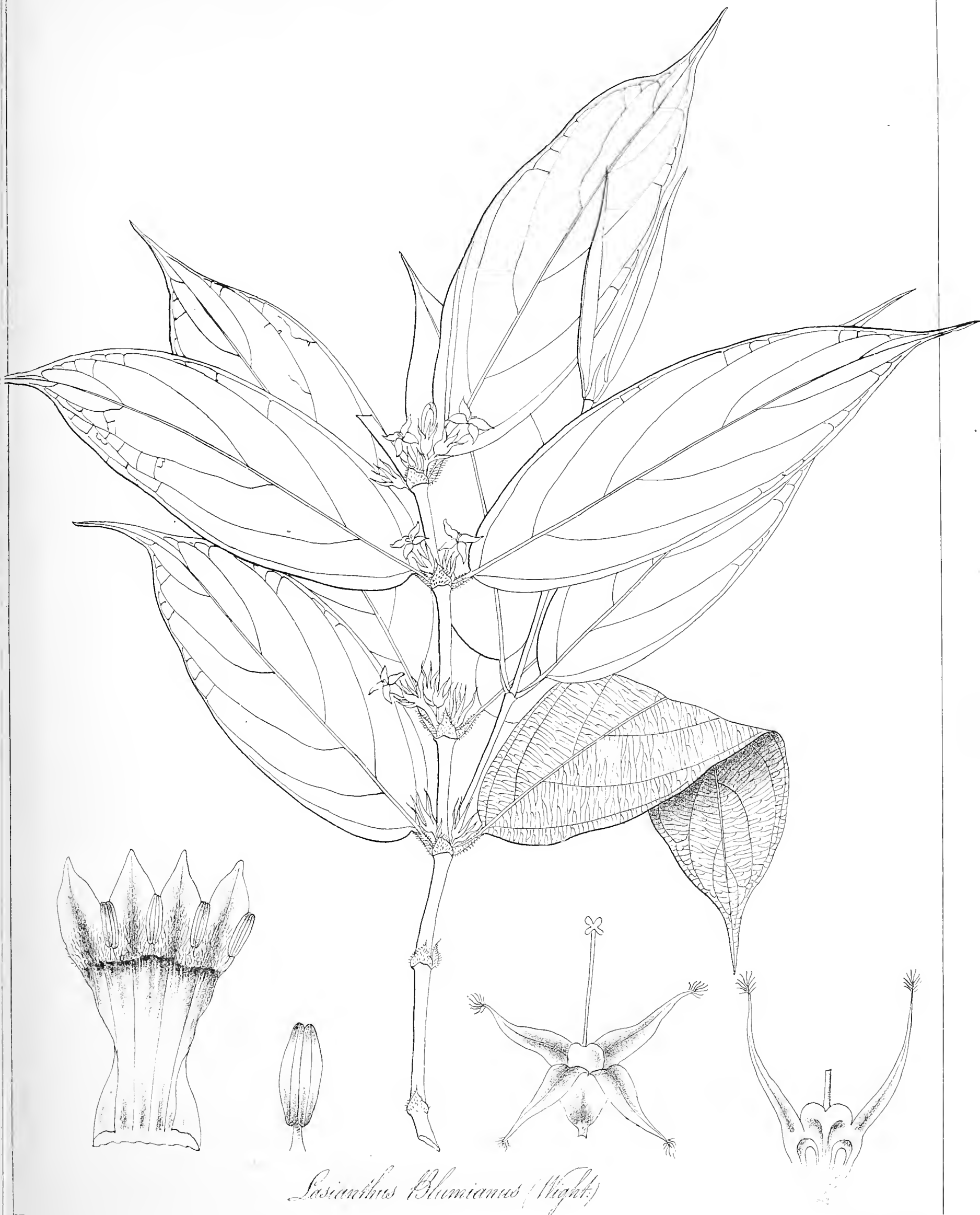
Sisparah ghat, Nilgherries,—*Mr. Ouchterlony's* ghat near Nedduvattam, Wynad—Coimbatore hills 5,000 feet.

I am not sure whether this is the *apiocarpum* of *Dalzell* or a new species, it has much larger flowers than the *D. Dalzellii* of Thwaites from Ceylon, which is apparently the same as *Dalzell's sphærocarpum*, and has the calyx deeply 4-lobed. My specimens from the Coimbatore hills differ from the Nilgiri and Wynad specimens, in having much smaller flowers (same size as Thwaite's *Dalzellii*) and smaller leaves, but the calyx is the same as in the species here figured, and I can discover no other difference ; all the species seem to be closely allied. *Diplospora* D. C. is an older name for this genus, but is false to the structure.

PLATE No. XL.

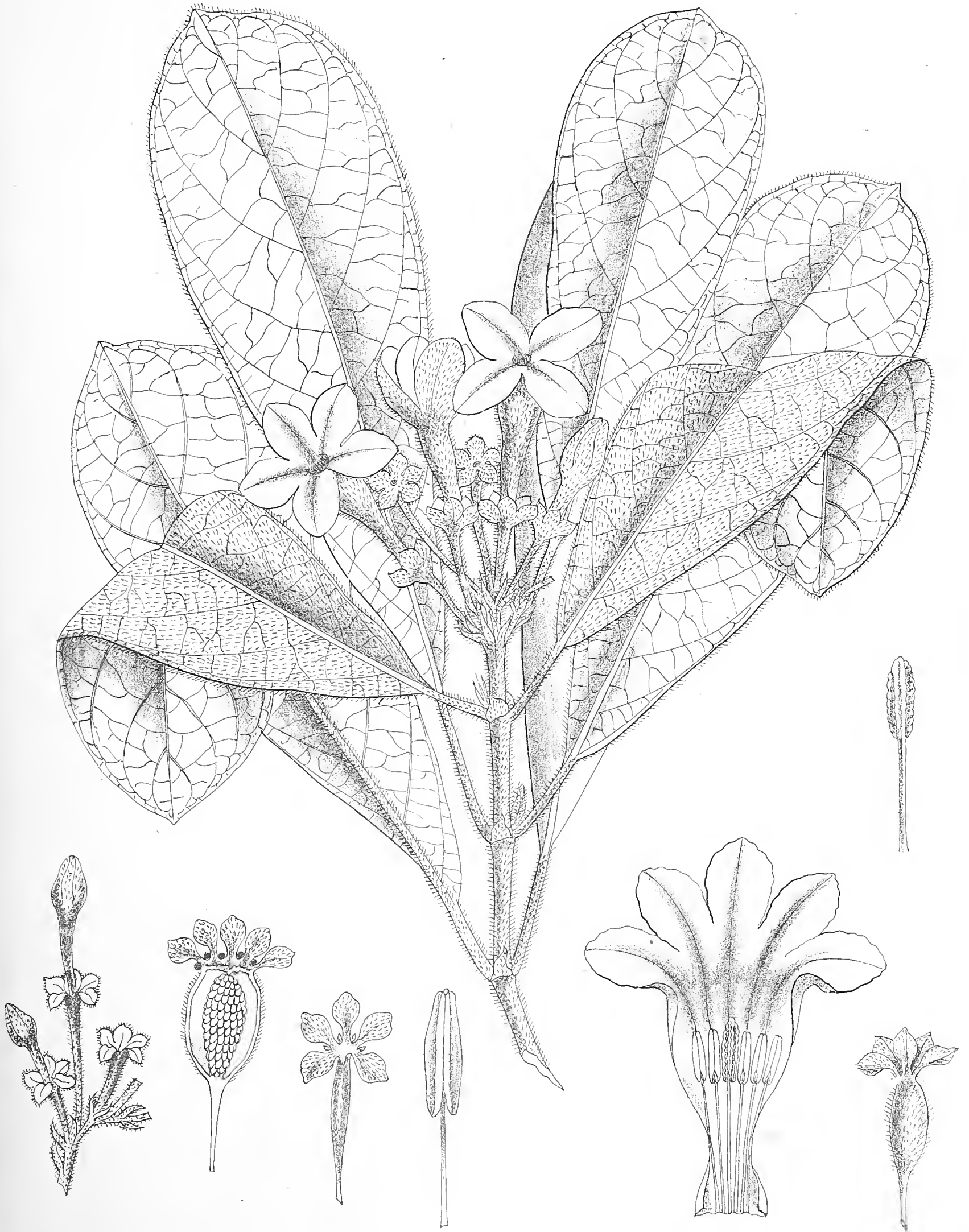






*Lasianthus Plumianus* (NIGHT.)





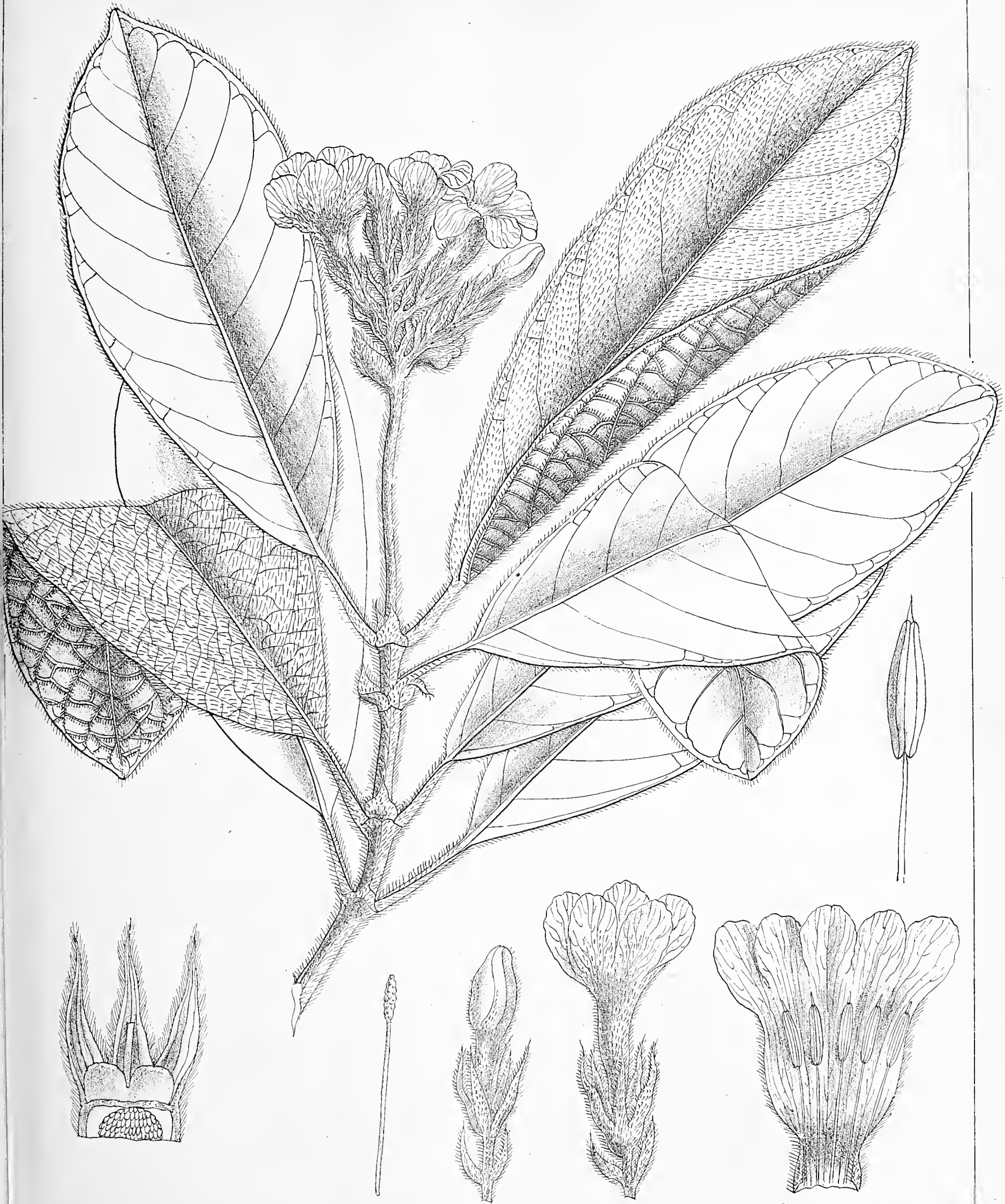
Grindoo, del.

*Acoranthera Anamallica* (Bedd.)

Dumphy, Lith.







Govindoo, del.

*Acranthera Leylanica* (Arut.)

Dumphy, Lith.





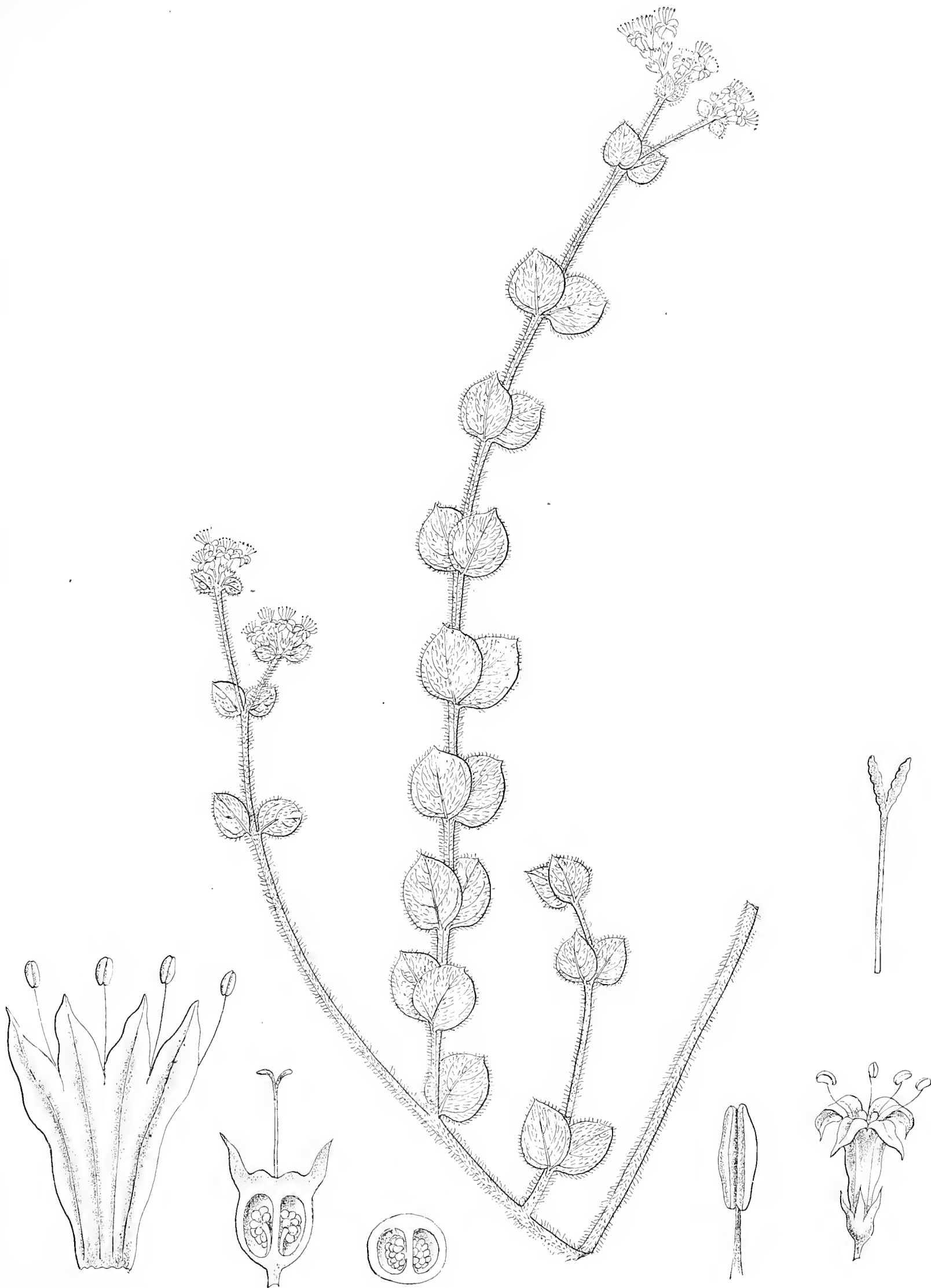


Goviados, del

*Accranthera grandiflora* (Bedd.)

Dumphy, Lith.













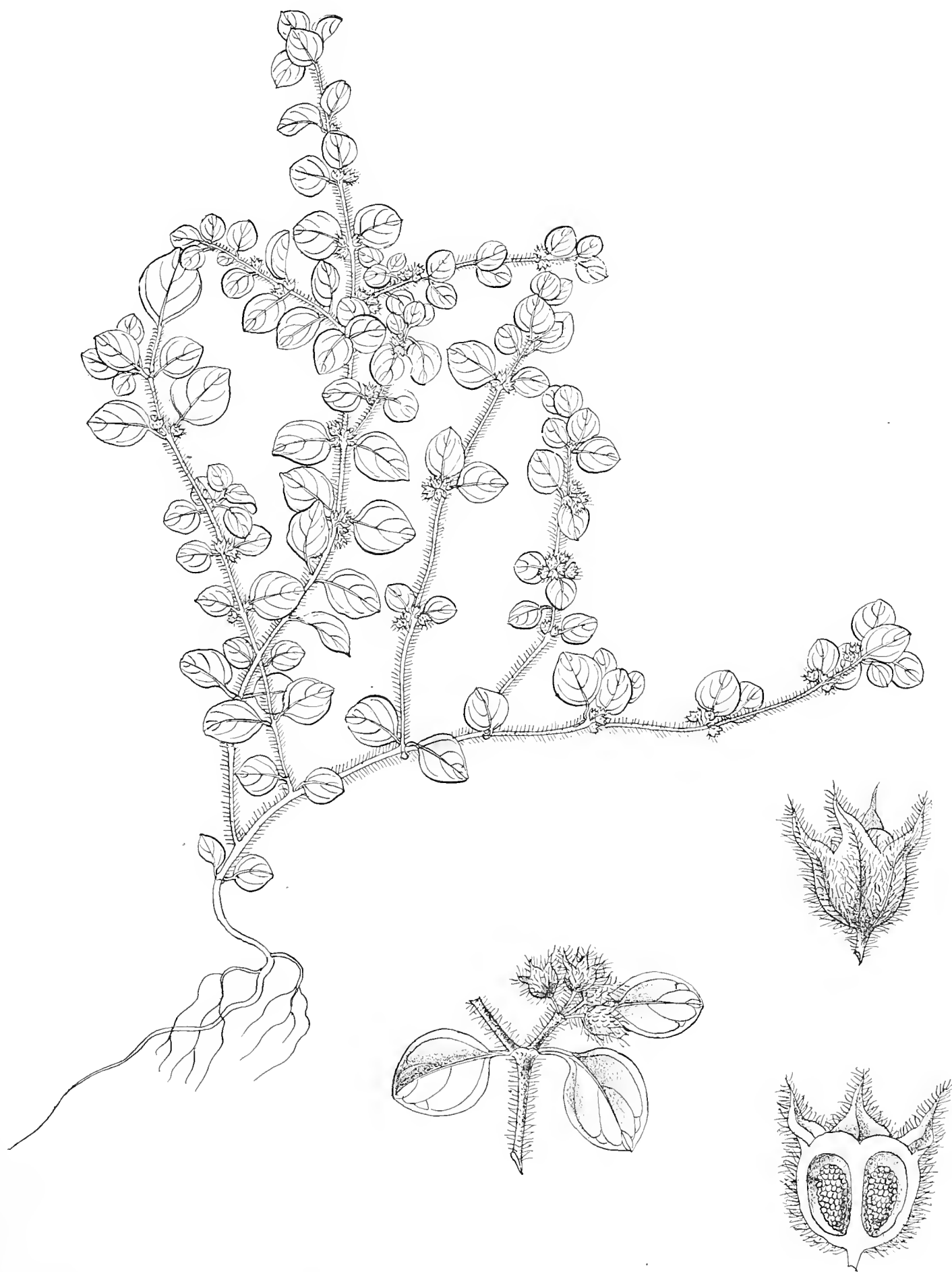
Govinc'ro; del;

*Hedyotis quadrilocularis* (Thw.)

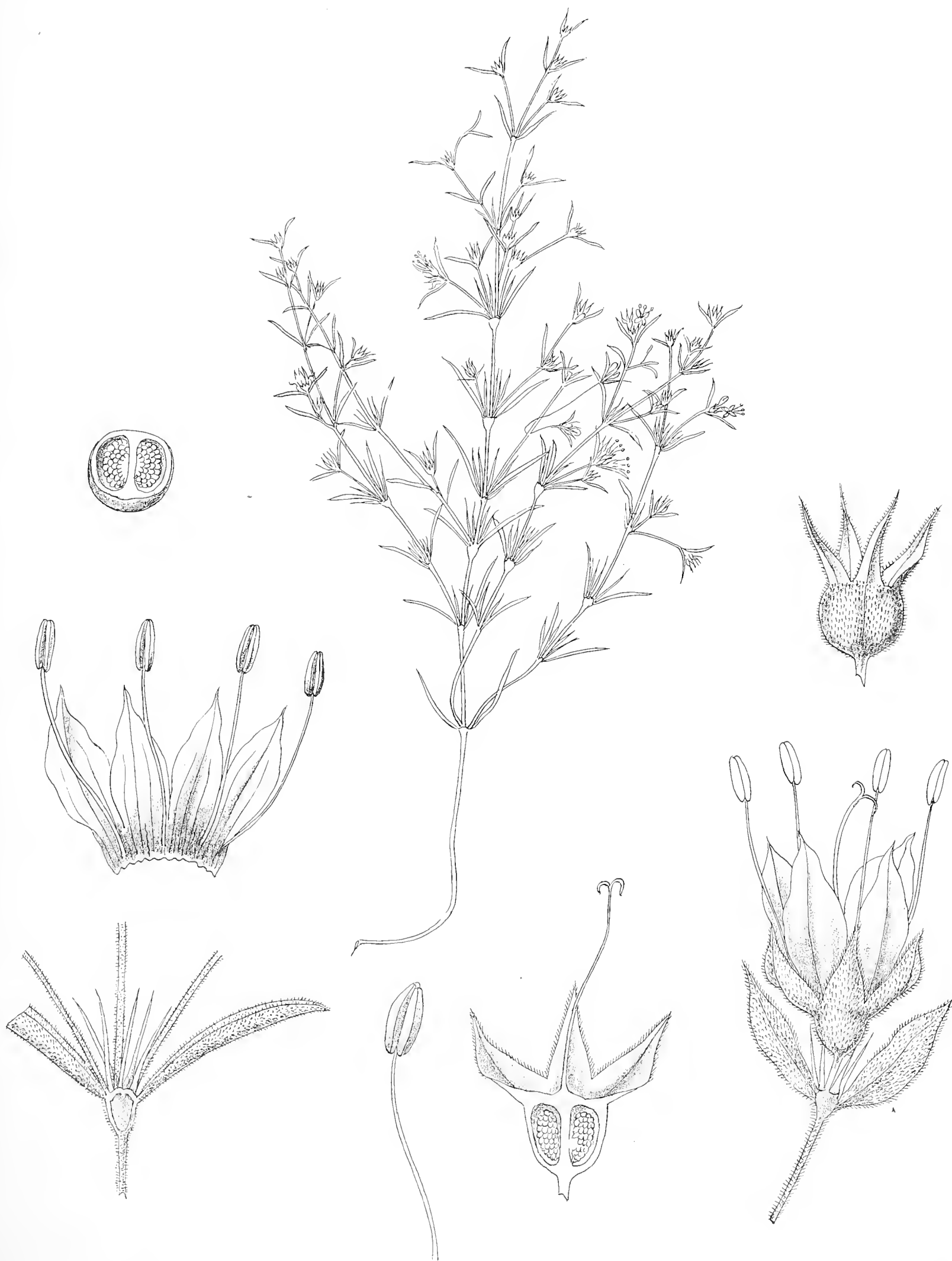
Dumphy, Lth:









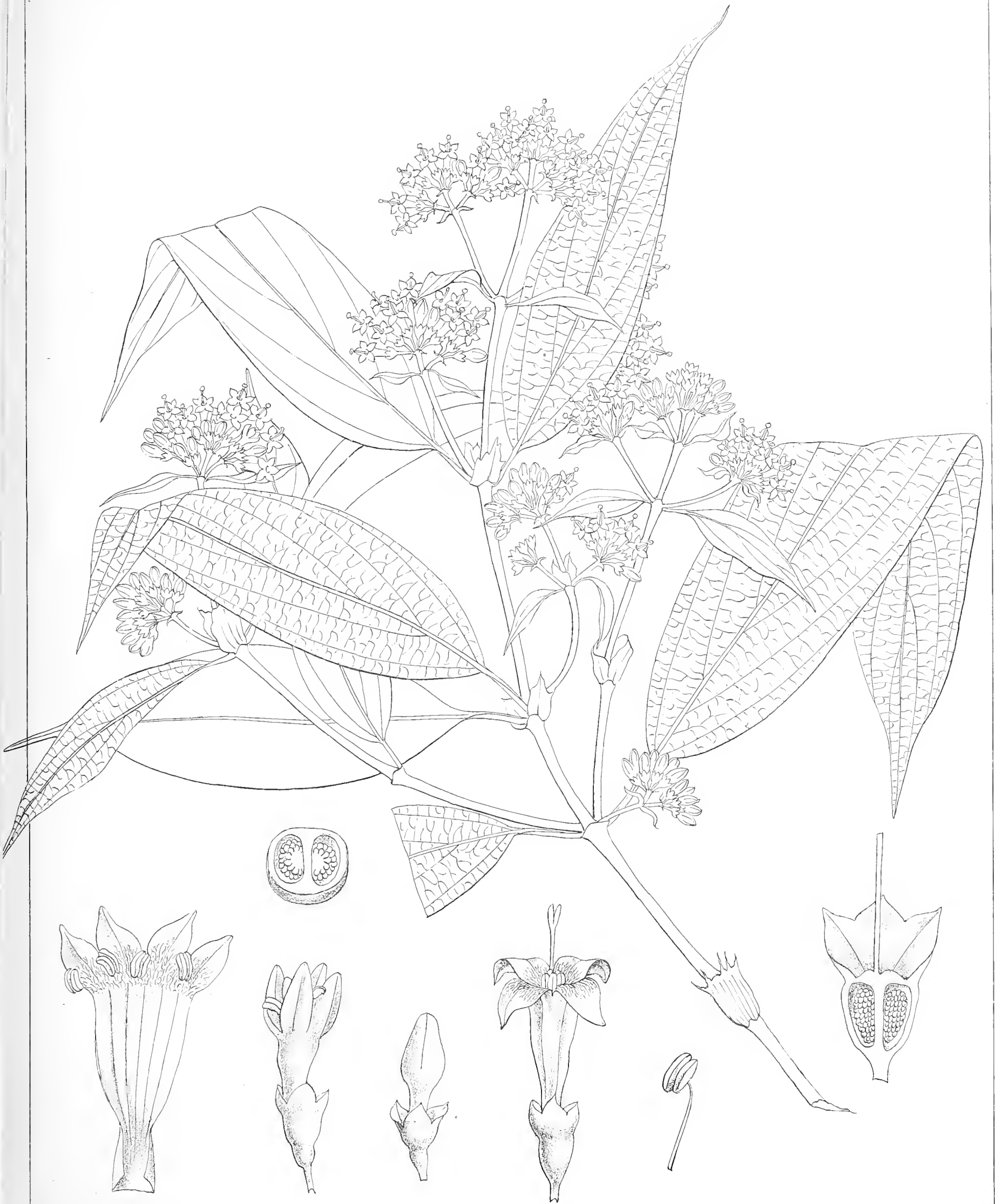


Levinson, del.

*Hedyotis coerulescens* (J. H.)

Dumphy, Lith.



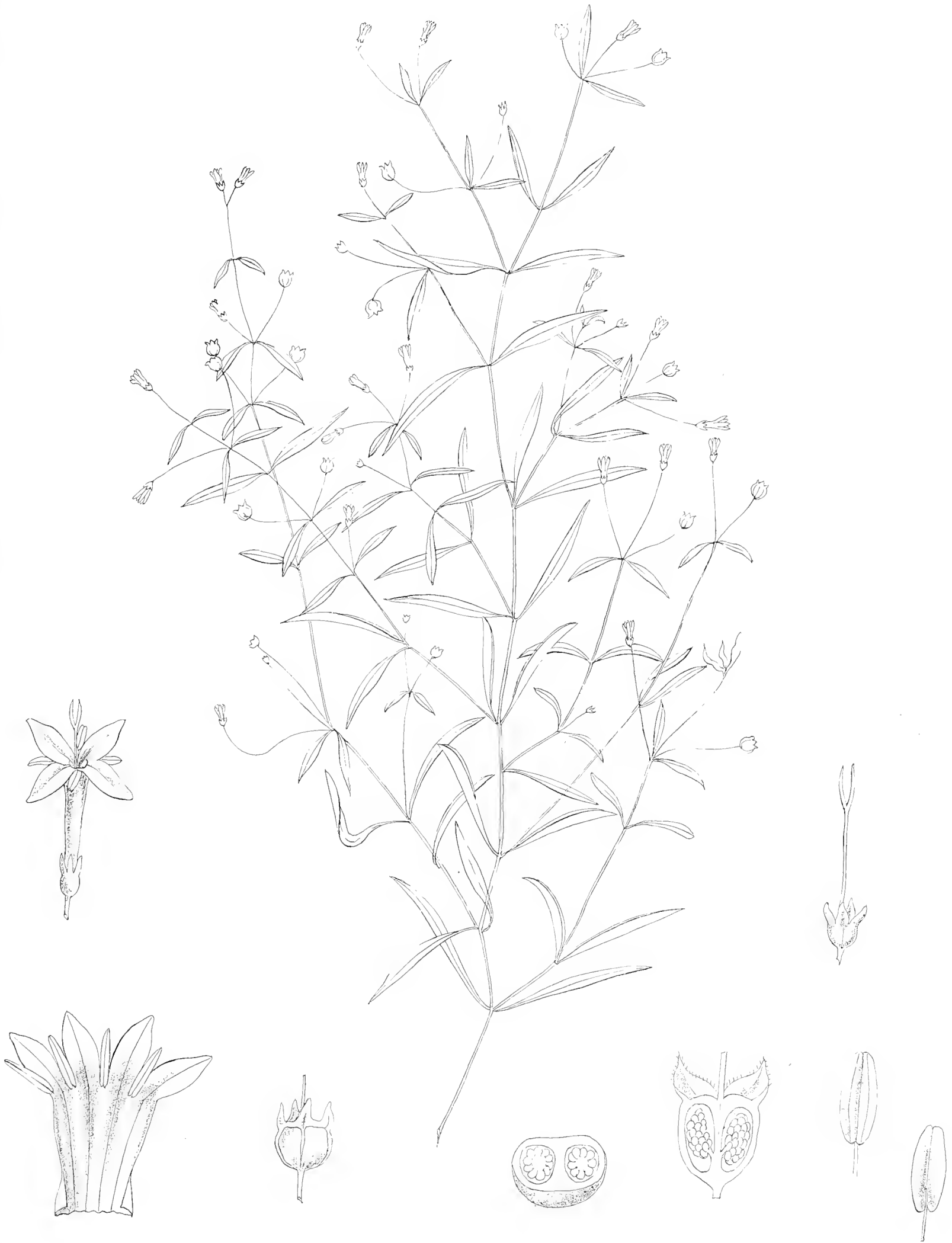










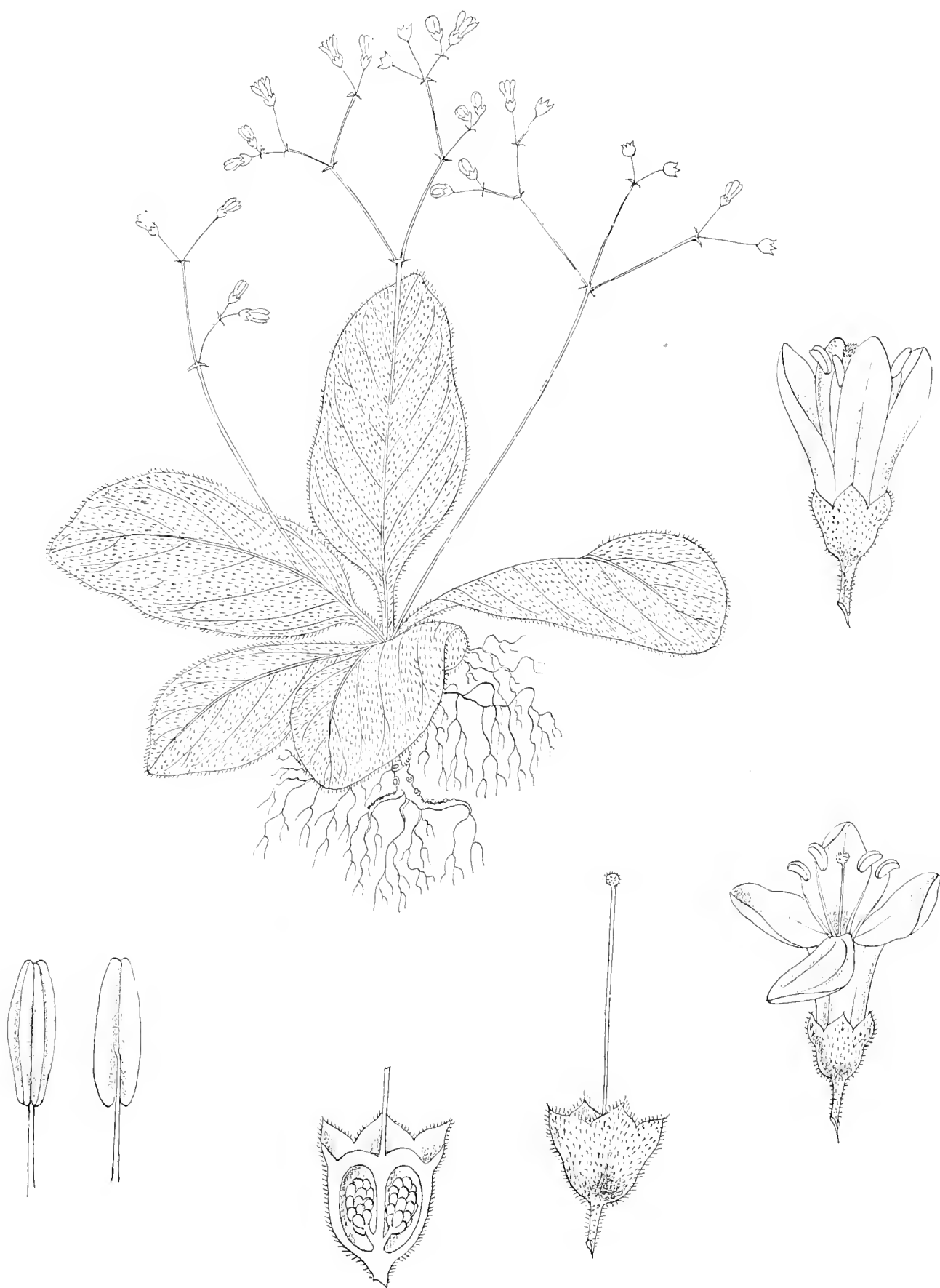


Govindoo, del.

*Hedyotis Heynei*, B.<sup>2</sup>

Dumphy, Litt.







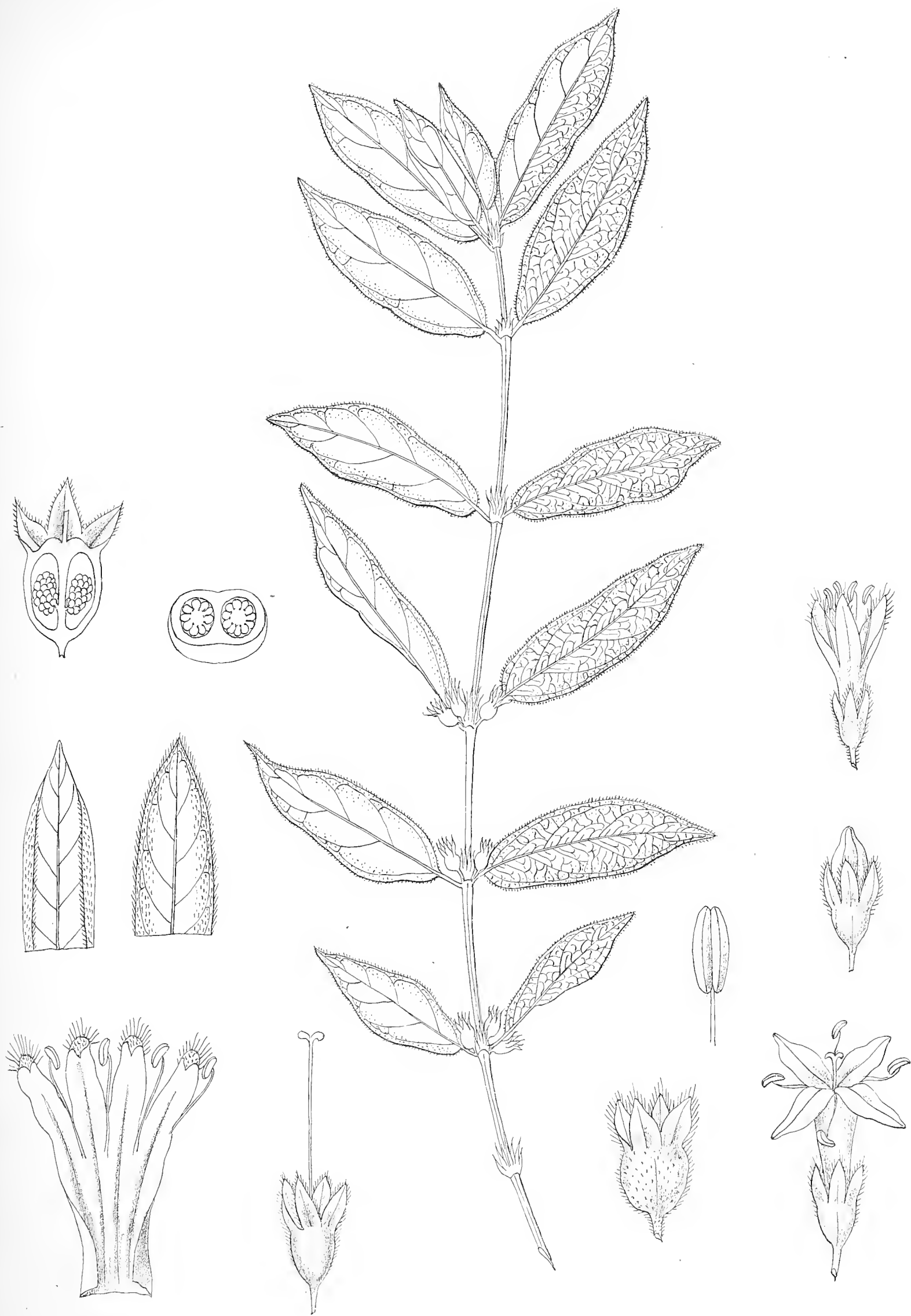


Govindoo, del.

*Hedysotis cymosa* (Thunb.)

Dumetia, Lill.





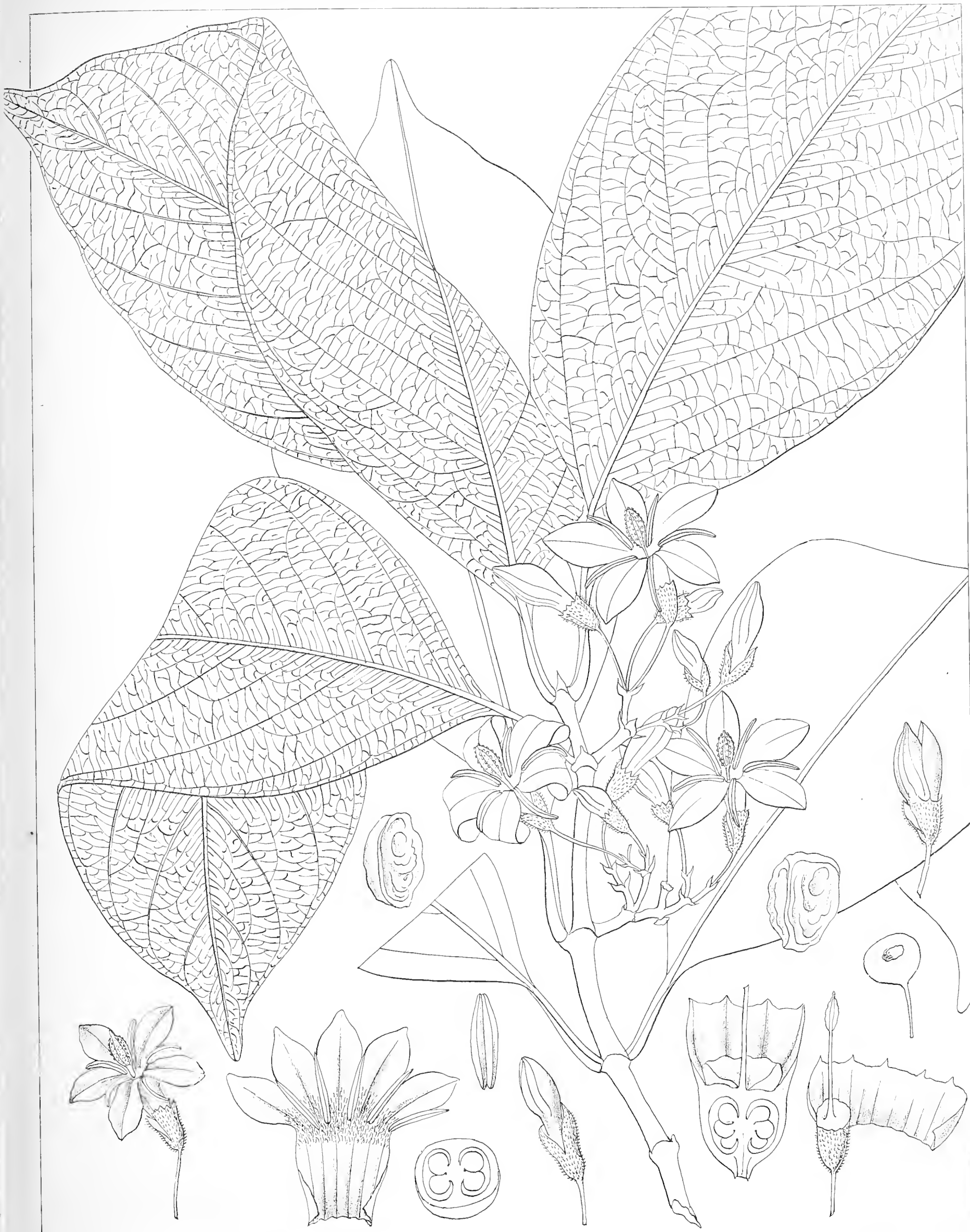
Lywinder, del.

*Hedyotis glabella*, (Brown?)

*Dumblay, Lith.*







Govindoo, del.

*Griffithia speciosa*, Bedd.

Dumphy, Lith.



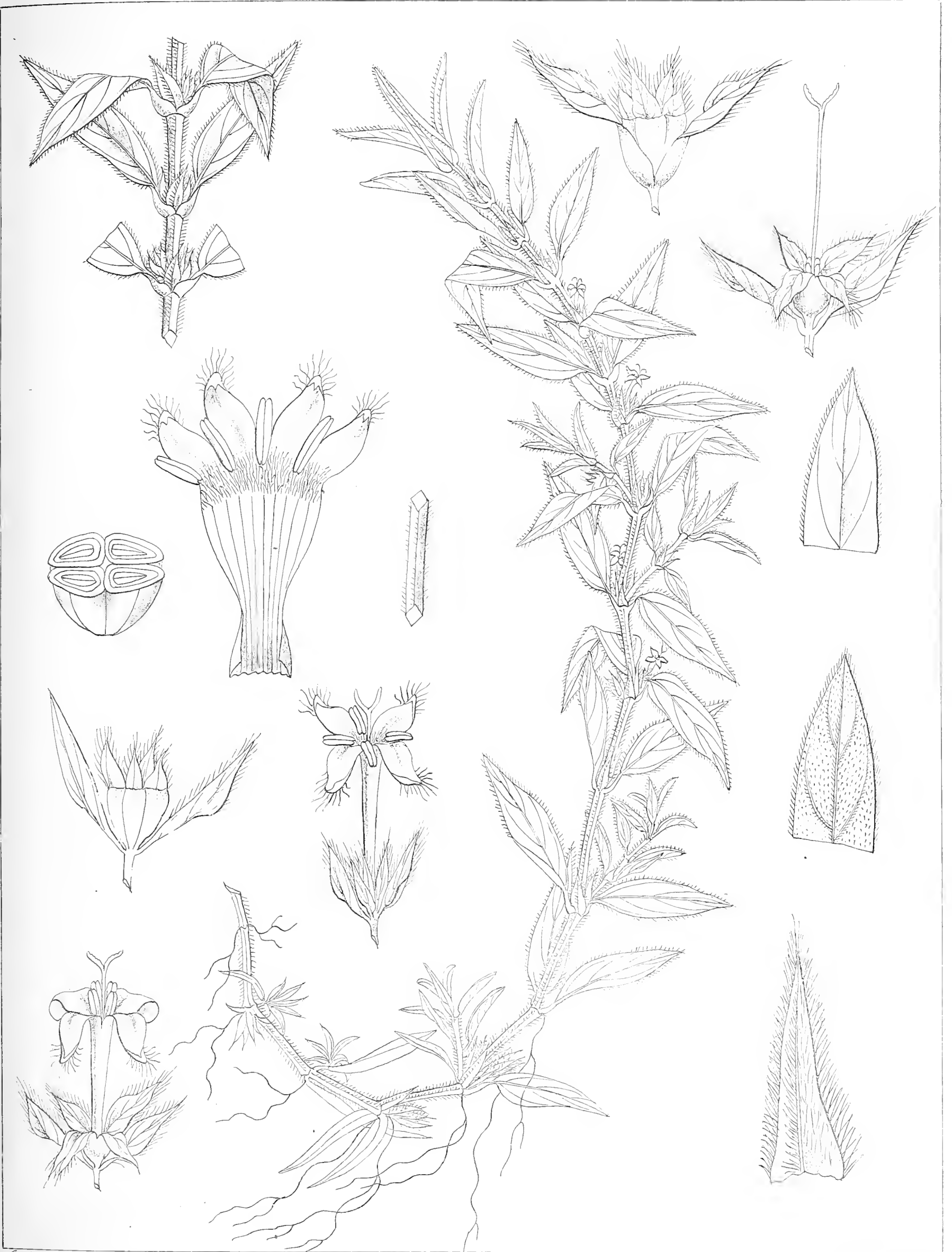


Gardner, del.

*Griffithia gardneri* (Sw.)

Dumort. Lab.



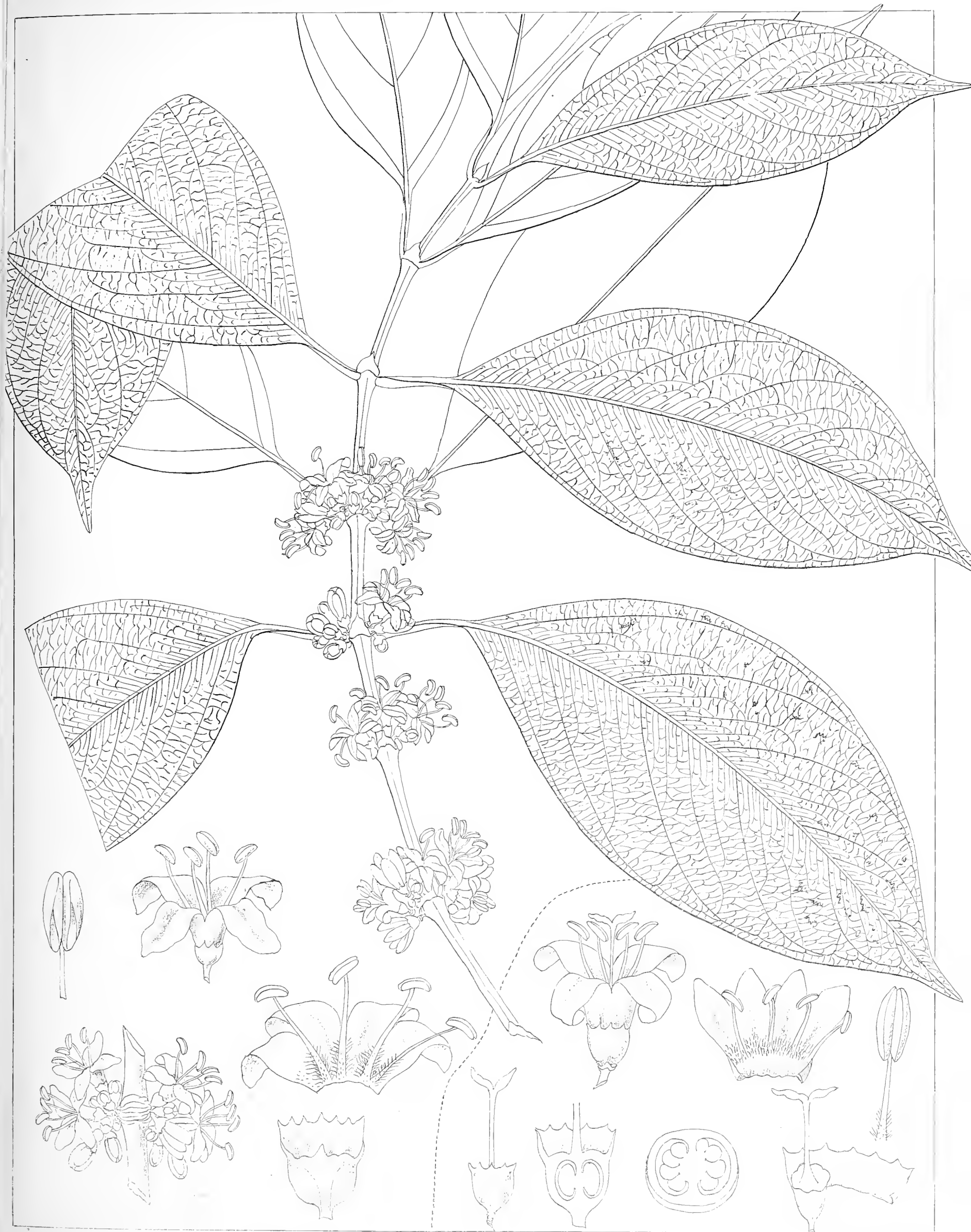


Goindoc, del.

*Boerhaavia tetracocca*, Thunb.

Lambert, Lith.





*Diospermum apiscarpum* Dalz.?

Dumort. Lib.





## ANONACEÆ.

**SAGERÆA THWAITESII.** (H. f. et T.) A small tree, leaves narrow oblong, 8-12 inches long 3-4½ broad (petiole ½ - ⅔ inch) coriaceous, glabrous, pale beneath; flowers hermaphrodite, yellow, in axillary fascicles on the thicker branches, pedicels 2-4, about an inch long, squamulate at the base, sepals imbricated short obtuse, petals rounded, exterior larger, stamens about 18 on an elevated torus, ovaries 3-6, strigose, stigma 2 lobed, ovules 8-10 in two rows, carpels subsessile about the size of a nut, many or few seeded, seed compressed, with a furrow all round. *Hook and Thom. Fl. Ind. p. 93.*

Ceylon, at an elevation of about 1,000 feet.

## PLATE No. XLI.

**SAGERÆA DALZELLII.** (Bedd.) A small tree, branches glabrous, leaves glabrous and shining above, oblong, rounded or slightly attenuated at the base, obtuse or sub-acute at the apex, 6-10 inches long 2½ to 3¼ broad (petioles nearly ½ an inch,) pedicels 4-8, squamulate at the base from axillary woody tubercles on the older branches about 1 inch long, ebracteolate, sepals rounded cohering at the base ciliate at the margin, flowers yellow hermaphrodite, petals concave, exterior larger ¼ inch long, stamens about 28 all fertile, outer ones larger and anther cells distant, torus scarcely elevated; ovaries 3-5 hairy, stigma small capitate entire, ovules about 12 in two rows.

Anamallay forests in dense moist woods 2,500 feet elevation (in the Karian Shola). It flowers in March, the calyx differs from the other species, its sepals cohere at the base instead of being imbricated, the anthers are more numerous and the stigma is entire in this whereas it is 2 lobed in *S. Thwaitesii*—otherwise they much resemble each other. A third species of this genus, *S. laurina* Dalz. is found in the Concan, my specimens are unfortunately only in fruit, so I do not figure it; the only other Indian species is the *S. elliptica*. H. f. et T. from Tenasserim, which has diæcious flowers.

## PLATE No. XLII.

**XYLOPIA PARVIFOLIA.** (H. f. et T.) A shrub or small tree, branches fulvo-pubescent, at length glabrous white-dotted, leaves oblongo-lanceolate acuminate, acute at the base glabrous on both sides, 2-3 inches long, ¾—1¼ broad, (petiole ⅓rd inch), thickly coriaceous, above shining, pale beneath; fascicles 3-5 flowered axillary subsessile, pedicels very short, furnished with numerous small rounded imbricated bracteoles, sepal acute, petals pubescent on both sides, ovaries 3-6, ovules 4-6, carpels oblong size of a dove's egg, seeds in 2 series oblong, nestling in reddish pulp. *Hook. F. et Thom. Fl. Ind. p. 125; Patonia, Wight.*

Ceylon.

## PLATE No. XLIII.

**XYLOPIA NIGRICANS.** (H. f. et T.) A shrub, branches glabrous, young parts puberulous, leaves elliptic or lanceolate obtusely acuminate glabrous (blackish when dry), coriaceous, undulate, pale beneath, 3 inches long 1½ broad (petiole ⅔th inch), flowers axillary in threes or solitary, pedicels scarcely ¼ inch long slender, bracteoles 1-2, minute deciduous, exterior petals excavated to nearly the apex, ovaries 5, ovules 4-6, carpels size of a dove's egg or smaller dehiscent, seeds blackish smooth, attenuated towards the hilum, 4 lines long nestling in red pulp. *Fl. Ind. p. 125; Thw. En. p. 9.*

Ceylon.

## PLATE No. XLIV.

**XYLOPIA CHAMPIONII.** (H. f. et T.) A tree with slender glabrous branches, young shoots fusco-sericeous, leaves elliptic or broadly lanceolate acute at the base, acuminate at the apex, glabrous above, minutely puberulous beneath, coriaceous—pellucidopunctate, 3-4½ inches long 1-1¾ broad, petioles scarcely ¼ inch long; peduncles axillary solitary about 2 lines long, fusco-sericeous, bearing 2-3 minute squamæform bracts below the middle sepals united into an acutely 3 lobed cup, flowers yellowish marked with red, exterior petals ½—⅔ inch long thick concave, int. pet. ⅓rd shorter, cuniate at the base, and deeply concave, triquetrous above, ovary solitary pilose 4 ovuled, carpels pedicellate 5 ribbed longitudinally, seeds nestling in pulp. *Hook and T. Fl. Ind. p. 126.*

Ceylon in the Ambagamowa and Ratnapoora districts, up to 2,000 feet elevation.

This genus has not been detected on the continent, the only other Indian species described are the *X. Malayana*, H. f. et T.; and the *X. caudata*, H. f. et T. both from Malacca.

## PLATE No. XLV.

**ANAXAGOREA ZEYLANICA** (H. f. et T.) A small tree, branches and branchlets quite glabrous, leaves membranaceous glabrous on both sides pale beneath, scabrous at the costa, oblong or linear oblong, abruptly and obtusely acuminate, acute at the base 3-6 inches long,  $1\frac{1}{4}$ — $1\frac{3}{4}$  broad (petiole  $\frac{1}{4}$  inch) flowers solitary leaf opposed, pedicels about the length of petioles or shorter, bracts 2 amplexicaul 1 near the base, 1 about the middle of the pedicel, flowers  $\frac{3}{4}$  inch in diameter, sepals broad—oval, petals oval, exterior thick coriaceous, interior thinner, stamens all normal, connectivum prolonged into a short thick rounded point, style oval-oblong, carpels  $1\frac{1}{2}$  inch long spatulate mucronate, stalk compressed. *Fl. Ind.* p. 144.

Ceylon. The only other described Asiatic species of this genus is the *A. Javanica* of Blume which is closely allied, but differs in having the inner anthers abnormal; there are several S. American species.

PLATE No. XLVI.

**CYATHOCALYX ZEYLANICUS**. (Champion.) A tree, adult branches glabrous, young ones aureo-pubescent, leaves oblongo-lanceolate with a sudden acumination 6-10 inches long 2-3 broad, shining and glabrous on both sides coriaceous, veins oblique incurved, peduncles 1-3 about  $\frac{1}{2}$  an inch long, sepals joined into a subentire or minutely 3-5 toothed cup, hoary with minute golden pubescence, petals linear oblong 1-2 inch long, more or less hoary (like the calyx) especially at the claw, torus plane glabrous with a cavity in the centre in which the solitary glabrous ovary is seated, stigma large peltate rotundate, fruit broadly oval, a little larger than a goose's egg; seeds in 2 series numerous compressed 1 inch long transversely rugose, testa reddish brown, albumen ruminant. *Champ MSS. in Herb. Hook—Hook. and Th. Fl. Ind.* p. 127.

Common in the moist shola forests on the slopes of the ghats in Malabar and S. Canara and in the Anamallays at an elevation of 1—3,000 feet; also in Ceylon and Birmah. The specimen figured is from the Karian shola on the Anamallays. It is the only species known.

PLATE No. XLVII.

**ARTABOTRYS ZEYLANICUS**. (H. f. et T.) An enormous climber, leaves oblongo-lanceolate obtusely acuminate, glabrous on both sides and shining above, 4-7 inches long by  $1\frac{1}{2}$  to 3 broad, (petioles about  $\frac{1}{4}$  in.) peduncles leaf opposed woody and hook-like, pedicels (solitary?)  $\frac{1}{2}$  to nearly 1 inch long adpressedly fusco-tomentose (as are the calyx and petals), sepals cohering at the base acuminate, petals thickly coriaceous, the outer ones a little larger and furnished with a dorsal keel, ovaries numerous glabrous or villous, style recurved, torus villous scarcely convex, subglobose in fruit, fusco-tomentose marked with many large cicatrices; carpels strigoso-tomentose  $\frac{2}{3}$  to 1 inch long, granulate. *Fl. Ind.* p. 128.

Common in S. Canara, Mysore, Coorg and Travancore, &c. up to 4,000 feet elevation, also in Ceylon—the specimen figured is from the Sampagee ghat in Coorg. The uncinate woody peduncles are peculiar to the genus. A 2nd sp. *A. odoratissimus* is an ornamental shrub common in Madras gardens. Three other species, all creepers, are described by Hook and Thom. *A. caudatus* from Sylhet, *A. Burmanicus* from Ava and Mergui, and *A. suaveolens* from Sylhet and the Malay Peninsula. One species from tropical West Africa is the only extra Indian species recorded.

PLATE No. XLVIII.

**SACCOPETALUM TOMETOSUM**. (H. f. et T.) A good sized tree, young branches fulvo-tomentose, older ones glabrous, leaves oval, or ovato oblong acute rounded or cordate at the base, pubescent on both sides, 4-6 inches long,  $2\frac{1}{2}$ —3 broad; peduncles leaf opposed very short, 1 several flowered, pedicels 2-3 inches long, sepals very small linear oblong, 2 lines long, ext. petals linear longer than the sepals, int. oblong obtuse saccate at the base, downy on both sides, torus densely villous, subglobose; stamens indefinite multiseriate, ovaries broadly oval, style oval, ovules 4-6 in two series, carpels 5-15, subglobose about one inch long densely fulvo-tomentose—seeds 3-4 nestling in pulp. *Hook. and T. Fl. Ind.* p. 152.—*Uvaria tomentosa*. *W. A. prod.* p. 8; *Roxb. Fl. Ind.* ii. p. 667.

Common in the dry jungles at the foot of the Anamallays (specimen figured) and other hills on the western side of the Presidency, Mysore, Concan, Orissa, Central provinces and Nepaul.

*Saccopetalum longiflorum* H. f. et T.—the only other Indian species is found in Bengal and in the Terai; there is also one species described from Java.

PLATE No. XLIX.

**UNONA ELEGANS**. (Thw.) A small tree or shrub, leaves narrow lanceolate with a long acumination glabrous above and glaucous beneath, 4-6 inches long,  $\frac{3}{4}$  to 1 inch broad (petioles  $\frac{1}{4}$  inch), peduncles slender axillary solitary,  $\frac{1}{2}$  to  $\frac{3}{4}$  in. long, furnished with several bractcoles near the base and 1 about  $\frac{2}{3}$ ds up, flowers about  $\frac{3}{4}$  inch in diameter, sepals oblong lanceolate small puberulous on the outside, petals coriaceous sparingly puberulous on the outside, exterior  $\frac{3}{4}$  inch long, interior  $\frac{1}{2}$  inch, ovules 2-3, carpels much constricted between the seeds. *Thw. En.* p. 398.

Ceylon.

PLATE No. L.

**UNONA DISCOLOR.** (Vahl.) A small tree or shrub, leaves oblong or lanceolate, rounded at the base or cordate rarely acute, acute or acuminate at the apex, glabrous and shining above, glaucous beneath and sometimes sparingly pubescent, 2-8 inch long 1-2½ broad, (petioles scarcely ¼ inch), peduncles slender, 1-2 inches long axillary or above the axils; bearing a large oblong or lanceolate bract below the middle, flowers solitary, sepals scarcely joined at the base membranaceous glandularly dotted, sericeo-pubescent or subglabrous, ovato-lanceolate acute about ½ an inch long, petals finally 2 inches long and more, sericeous or subglabrous lanceolate from a broad base, the interior ones a little shorter and narrower, stamens oblong, anther cells unequal, interior ones shorter, connectivum oval produced beyond the anther, torus depressed somewhat excavated at the middle, ovaries 5-6 ovuled, fruit bearing peduncle sometimes thickened and the torus thickened and globose, carpels numerous menoliform, articulations 1-6. *W. A. prod. p. 9. Hook. & Thom. Fl. Ind. p. 132; Roxb. Fl. Ind. ii. 669; U. chinensis, D. C. prod. 1-90. U. undulata. Wall. Pl. As. Rar. iii. t. 265; U. Lessertiana, D. C. prod. 1-90.*

Orissa, Carnatic, Concan, (specimen figured), Ceylon—Birmah and Chittagong, Sikkim and Malay Peninsula.

PLATE No. LI.

**UNONA PANNOSA.** (Dalz.) A small tree, young branches pubescent, leaves ovato-lanceolate obtusely acuminate, 2½-4 inches long, ¾-1½ broad, (petioles 2 lines long) glabrous above, sparingly pubescent beneath at length glabrous, flowers of a dirty white color, axillary subsessile, sepals villous on the outside, ovate acute 3 lin. long, petals oblongo-lanceolate villous (like woolly cloth), 1-2 inches long, unguiculate at the base, the inner 3 slightly narrower all nearly equal in length, or the outer considerably longer, stamens short cuneate, connectivum capitate subtruncate, torus elevated, convex covered with tufts of dense hairs, ovaries 8-12 densely strigose crowned with a short style, stigma capitate, ovules 2-3, carpels 5-6 oval obtuse very short pedicelled ⅔ of an inch long, seed 1-3 large, testa shining smooth. *Dalz. in Hook. Kew Misc. iii. 207; Uvaria mollis. Wall. Cat. 6475.*

Common in moist forests on the western side of the Presidency up to an elevation of about 3,500 feet. The specimen figured is from the Anamallays.

PLATE No. LII.

**POLYALTHIA COFFEOIDES.** (Thw. MSS.) A good sized tree, young parts minutely puberulous, leaves lanceolate or oblongo-lanceolate glabrous on both sides shining above, (veins very prominent beneath) acute or rounded at the base, gradually attenuated into an obtuse point at the apex, margins slightly undulate, 4-10 inches long 1½ to 3 broad, petiole ¼ inch long, pedicels several together from woody tubercles about the trunk and larger branches or solitary or twin in the axils of the fallen leaves on the young branches, 1 to 1½ inch long, minutely adpresso-puberulous, articulated at the base, and furnished with 2-3 deciduous squamæform bracts, sepals nearly round, petals coriaceous glabrous or slightly hairy, lanceolate, acute or obtuse at the apex, about an inch long, inner ones rather larger, carpels puberulous about 1 inch long ovoid attenuated at both ends on pedicels about 1 inch long, seed oblong, 7 lines long 5 lines broad, flowers cream-colored. *Fl. Ind. p. 141.*

Common in moist forests from 1 to 3,500 feet elevation on the western side of the Presidency and in Ceylon. In the Wynad the Kurambar make a sort of rope from the bark which has a strong smell of ammonia when fresh. I have met with it in flower at all seasons. The specimen figured is from the Anamallays.

PLATE No. LIII.

**POLYALTHIA FRAGRANS.** (Dalz.) A large tree, leaves ovate, oblong or oblongo-lanceolate, rounded at the base generally oblique; very prominently veined especially beneath, glabrous above, slightly pubescent on the costa and veins beneath, 4-9, inches long, 2-5 inches broad, petioles about ¼ inch long, peduncles about an inch long, from the axils of the fallen leaves, pedicels filiform, 1 inch long (and as are the calyx and petals) hoary-puberulous, furnished with a half cup-shaped bract about the middle, sepals small rotundate, petals 1-1½ inch long narrow linear attenuated at the apex, sub-equal; torus dilated depresso globose, carpels 10-20 oblique-ovoid 1-1½ inch long, hoary puberulous long pedicelled. *Dalz. in Hook. Kew Misc. iii. 206; Hook. and Thom. Fl. Ind. p. 142.*

In the moist forests of the Anamallays 2,500 feet elevation (specimen figured), also in Malabar and the Concan.

PLATE No. LIV.

**POLYALTHIA PERSICÆFOLIA.** (H. f. et T.) Shrubby, branches glabrous, younger parts fusco-pubescent, leaves lanceolate with a long slender acumination, oblique at the base, sparingly puberulous, 2-4 inches long, ⅔-1¼ broad (petioles 1 line long) coriaceous, pale beneath; peduncles a little above the axils, scarcely 1 line long, pedicels fascicled 2-3, ¼-½ inch long, fusco pubescent; flowers small, sepals ovate acute strigoso tomentose, petals thickly coriaceous strigoso pubescent, exterior ones twice as large as the sepals, ovate or rotundate acuminate, interior ones nearly twice the size of the exterior, ¼ inch long, rotundate, ovaries densely strigose, torus in fruit small, carpels globose, 10 or more on short pedicels, 1-2 lines long, the size of a pea, puberulous, or subglabrous. *Hook. et Thom. Fl. Ind. p. 140.*

Tinnevely and Travancore forests at an elevation of 3,000 to 4,000 feet. Attraymallay and Paupanassum hills.—Ceylon (specimen figured.)

PLATE No. LV.

**POLYALTHIA SUBEROSA.** (Dun.) A small tree or shrub, bark corky, adult branches glabrous, young ones slightly pubescent, leaves oblong obtuse at both ends, or rarely a little narrowed at the base and acute at the apex, sometimes oblique at the base, submembranaceous, margin undulate, glabrous above, beneath more or less pubescent, at length glabrous,  $2\frac{1}{2}$ -5 inches long  $1-1\frac{3}{4}$  inches broad, petioles 1-2 lines long, peduncles axillary very short, pedicels solitary or two together,  $\frac{1}{2}$ -1 inch long slender, subclavate at the apex, pubescent, furnished with a linear subulate bracteole below the middle, sepals pubescent, small, sub-persistent in fruit, petals oval obtuse pubescent, interior  $\frac{1}{2}$  inch long nearly twice as long as the exterior ones, ovaries fusco strigose, torus in fruit small globose tomentose, carpels numerous mucronulate, size of a pea, subsericeous, at length glabrous. *Hook and Thom. Fl. Ind. p. 140* ; *W. A. prod. p. 10* ; *Uvaria suberosa, Roxb. Fl. Ind. ii. 667.*

Cumbum valley Madura district (specimen figured), Carnatic, Orissa, Bahar, Bengal, Assam, Tenasserim, Ceylon.

PLATE No. LVI.

**POLYALTHIA ACUMINATA.** (Thw.) A tree, branchlets and petioles pilose, leaves oblong or obovato-oblong, rostrate, acuminate, narrowed at the base subglabrous, channelled at the costa above, pilose on the costa and very prominent veins beneath, 6-12 inches long  $2\frac{1}{2}$ -4 inches broad (petioles 2-4 lines long), flowers cauline, large yellowish subsolitary or few, pedicels 1-2 $\frac{1}{2}$  inches long fulvo-tomentose furnished with a small bract below the middle, sepals ovate 4 lines long fulvo-tomentose on the outside, petals 13 lines long, interior a little broader than the exterior, fulvo-tomentose, ovato-lanceolate acuminate ; torus convex tomentose, style as long as the pilose ovary, stigma pilose, carpels ovoid tomentose, size of a nut. *Thw. En. p. 399.*

Ceylon, near Ratnapoora.

PLATE No. LVII.

**GONIOTHALAMUS THWAITESII.** (H. f. et T.) A small tree, branches glabrous, leaves oblong shortly and obtusely acuminate,  $3\frac{1}{2}$ -6 inches long  $1\frac{1}{4}$ -2 $\frac{1}{2}$  broad, rigid coriaceous, glabrous on both sides, shining above, pale beneath, petioles  $\frac{1}{4}$  to  $\frac{1}{2}$  an inch long peduncles axillary  $\frac{2}{3}$ rd to 1 inch long, subclavate at the apex, furnished with minute scale like bracts at the base, flower about 1 inch long, exterior petals ovato-lanceolate glabrous, thickly coriaceous with a short broad claw at the base, inner petals closely connivent into a mitriform ovate cup, ovaries linear oblong strigose, style subulate longer than the ovary, ovules 2, torus plane, carpels numerous or fewer by abortion, very shortly pedicelled a little more than  $\frac{1}{2}$  an inch long, oval, obtuse, seed 1. *Hook. and T. Fl. Ind. p. 106.*

In moist forests on the South Tinnevely and Travancore mountains at an elevation of 3 to 4,000 feet ; it flowers in July.—also found in Ceylon. The specimen figured is from the Paupanassum hills in Tinnevely.

PLATE No. LVIII.

**GONIOTHALAMUS THOMSONI.** (Thw.) An erect shrub,  $1\frac{1}{2}$ -3 feet, leaves obovate, or obovato lanceolate, with a long abrupt acumination, 5-12 inches long,  $1\frac{1}{2}$ -3 inches broad, (petioles about  $\frac{1}{2}$  inch long), peduncles cauline solitary or twin,  $\frac{3}{4}$  inch long ascending and curved down near the apex, flowers yellow, sepals persistent lanceolate  $\frac{1}{4}$  inch long, exterior petals lanceolate much narrowed towards the apex, rounded at the base,  $\frac{1}{2}$  inch long, interior connivent into a mitriform oval acute cup, which is 6 lines long, ovaries pilose, style as long or larger than the ovaries divided into 2 filiform segments, ovules 2 superposed, carpels 1 seeded oval apiculate  $\frac{1}{2}$  inch long, pedicels 2 lines long. *Thw. En. p. 7.*

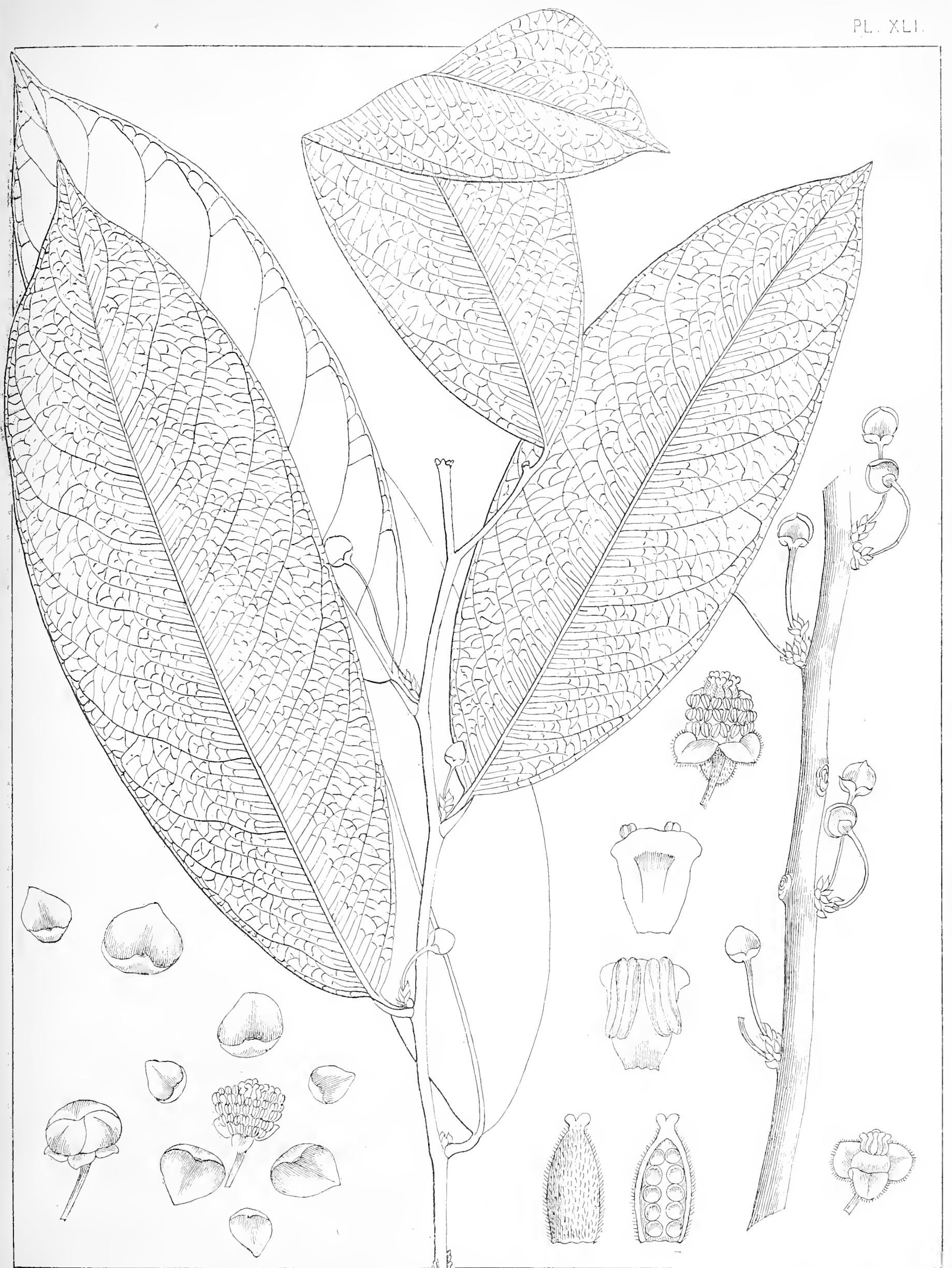
Ceylon (forests between Galle and Ratnapoora).

PLATE No. LIX.

**GONIOTHALAMUS GARDNERI.** (H. f. et T.) An erect shrub, 8-10 feet high, leaves narrow oblongo-lanceolate, acute at the base, obtuse at the apex or shortly acuminate, 5-8 inches long 1-2 broad (petioles  $\frac{1}{4}$  inch) thickly coriaceous, shining above, pale beneath principal veins connected by loops near the margin (as in the other species), peduncles axillary or little above the axils scarcely longer than the petioles furnished with scales at their base, flowers greenish yellow  $1\frac{1}{2}$  inches long, sepals persistent cordate at the base, submembranaceous, with rather prominent veins (when dry) exterior petals oblongo-lanceolate glabrous scarcely unguiculate at the base ovaries adpressedly pilose crowned with a long subulate style nearly 3 times their length, carpels oblong short pedicellate, generally 2 seeded. *Thw. En. p. 7* ; *Hook and Thom. Fl. Ind. p. 107.*

Ceylon, 2,000 to 4,000 feet elevation.

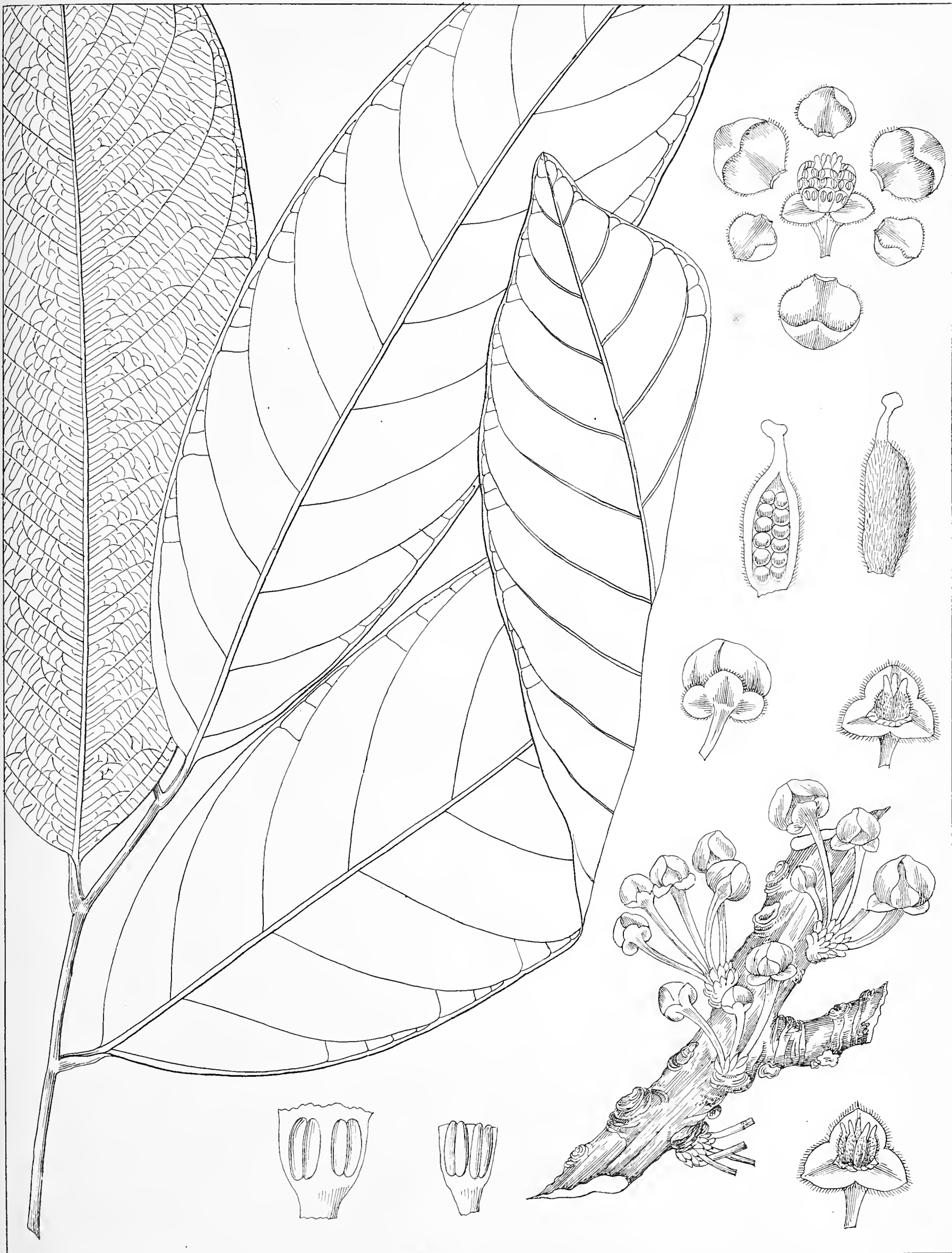
PLATE No. LX.



*Sageraea Thwaitesii* (Hook. fil. et Thoms.)

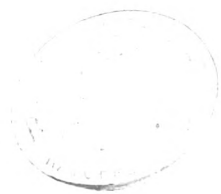


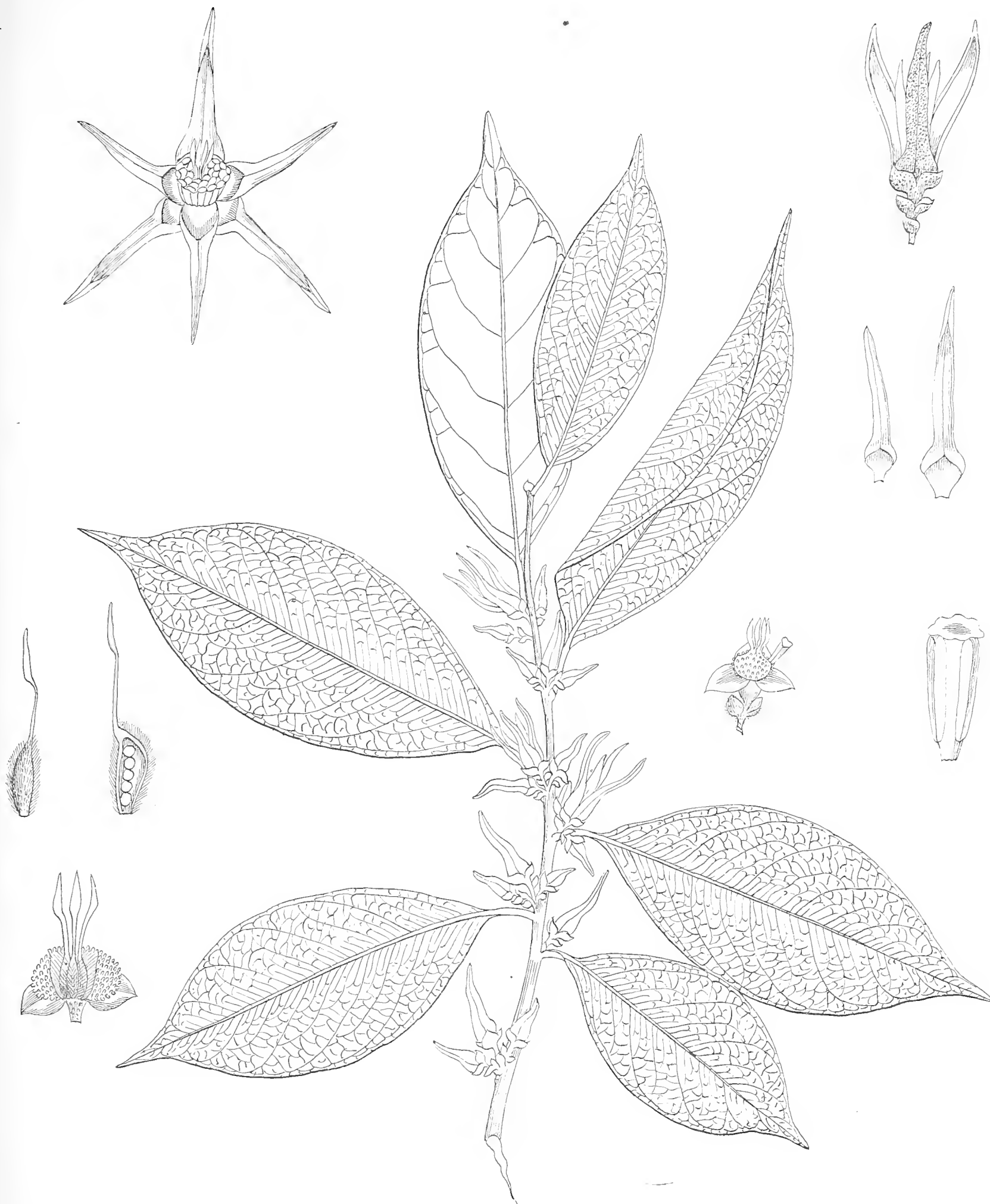




*Lagera Dalzellii* (Bedd.)

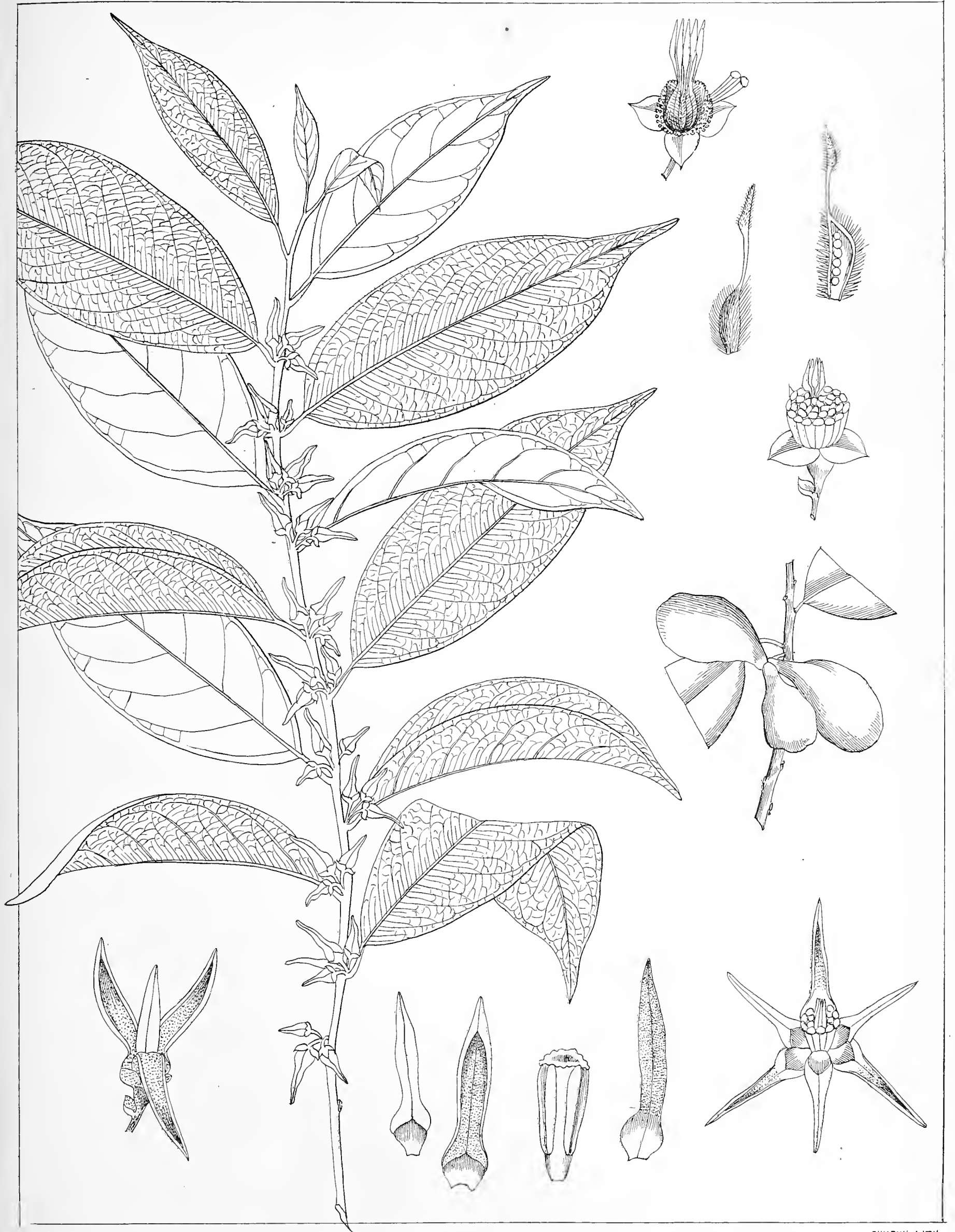






*Xylopia parvifolia* (Hook. fil. et Thoms.)





*Xylopia nigricans* (Hook. fil. et. Thoms.)



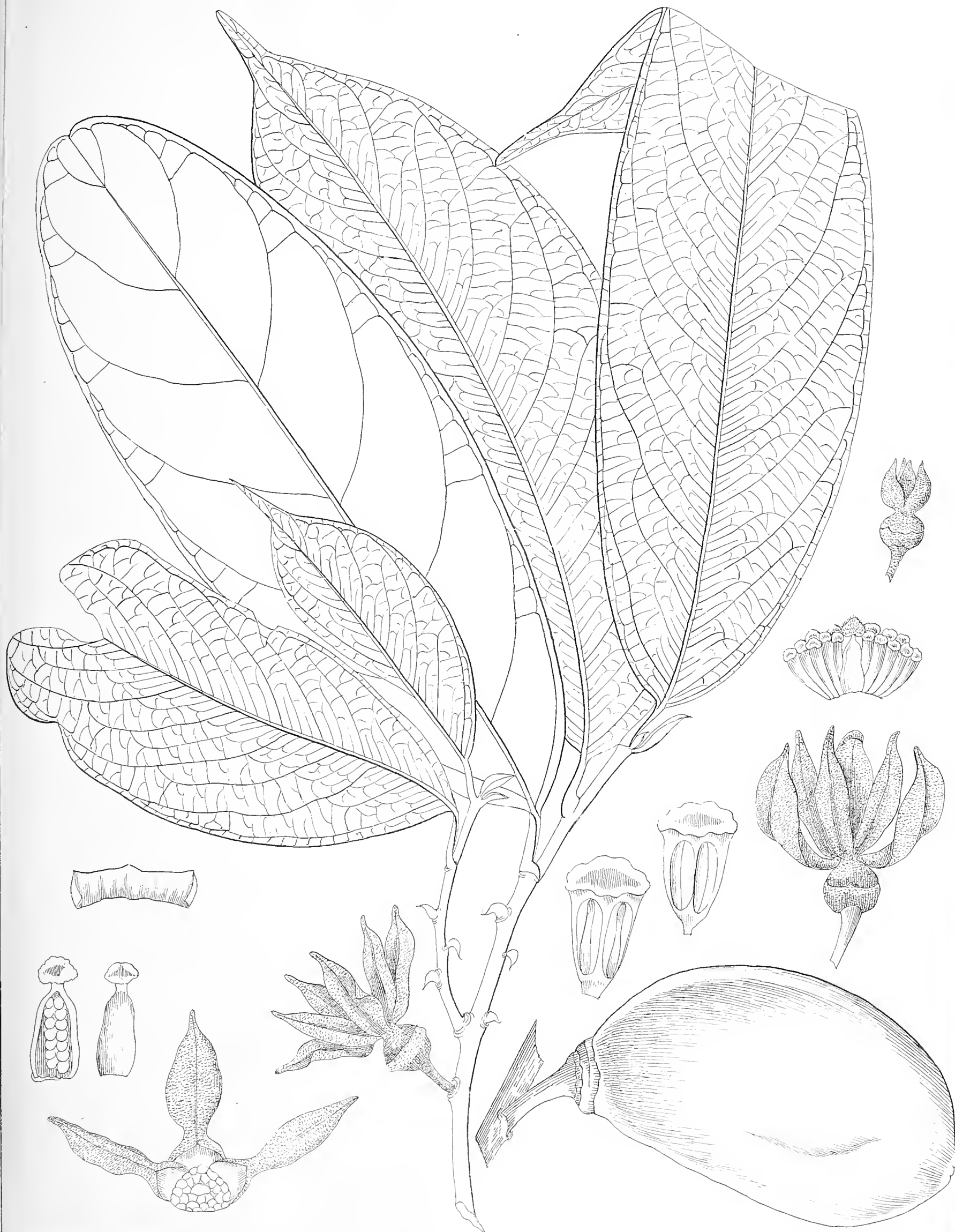






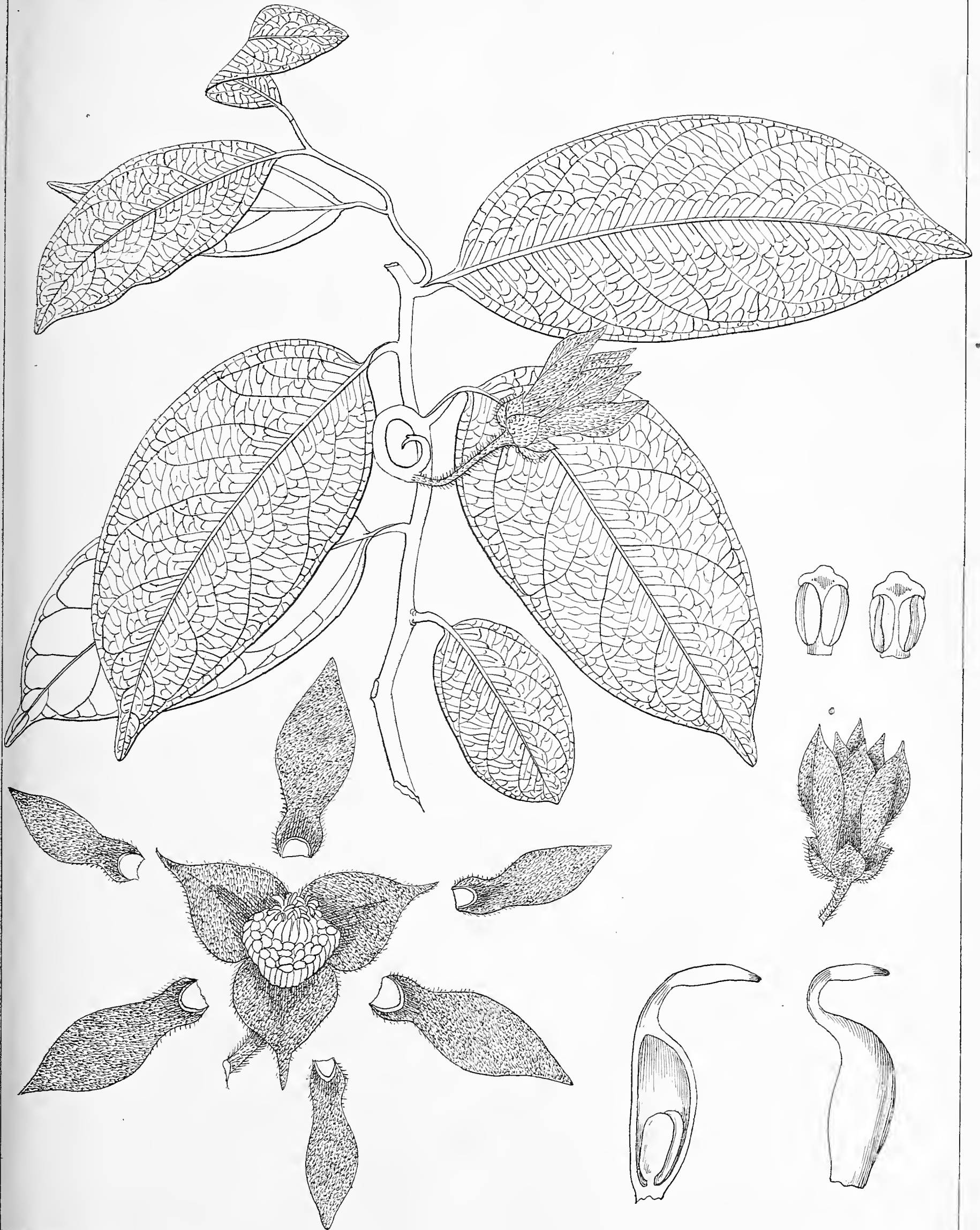






*Cyathocalyx Seylanicus* (Champ.)





*Artabotrys Zeylanicus* (Hook. fil. et Thoms.)



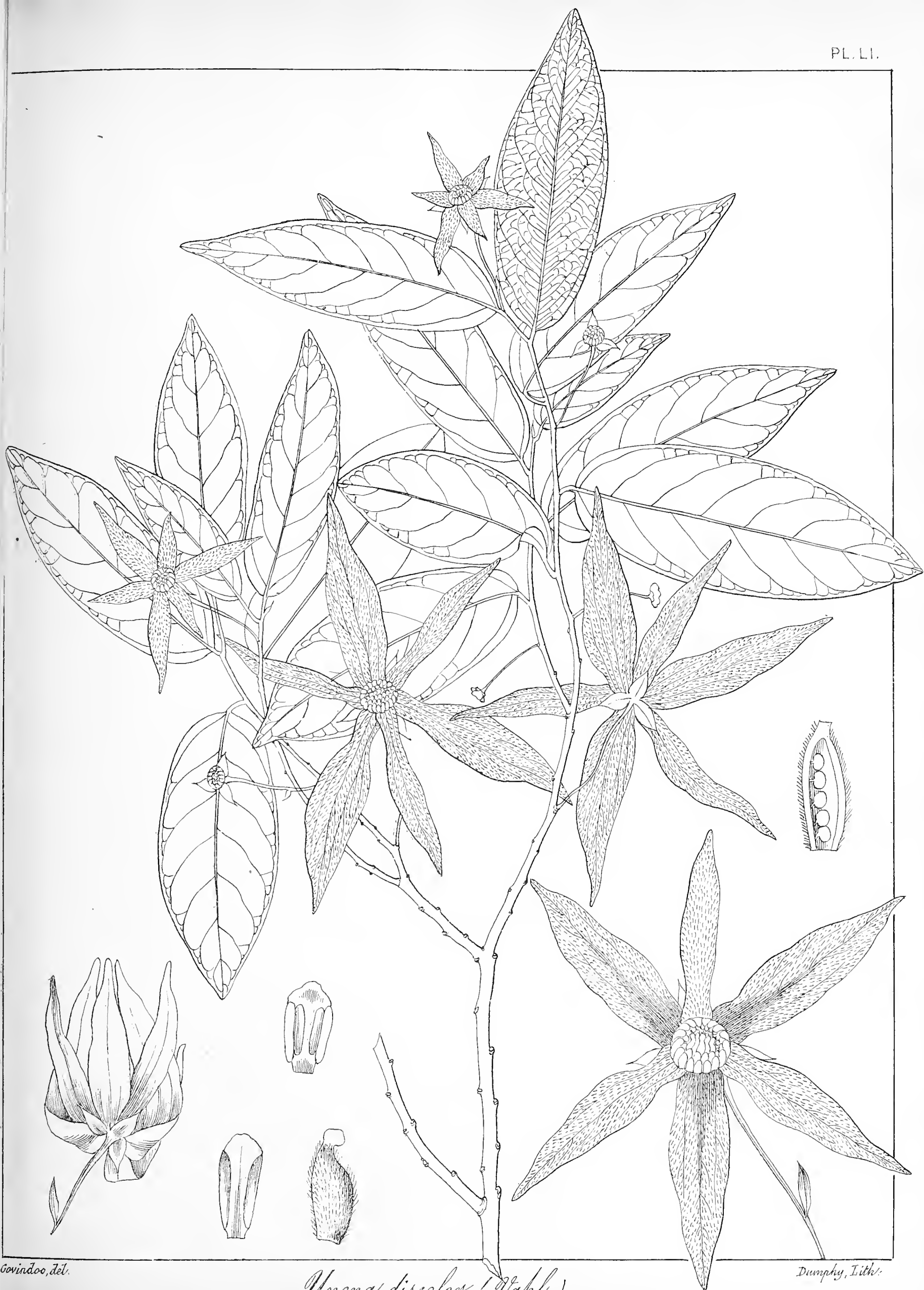












Govindoo, del.

*Unona discolor* (Vahl.)

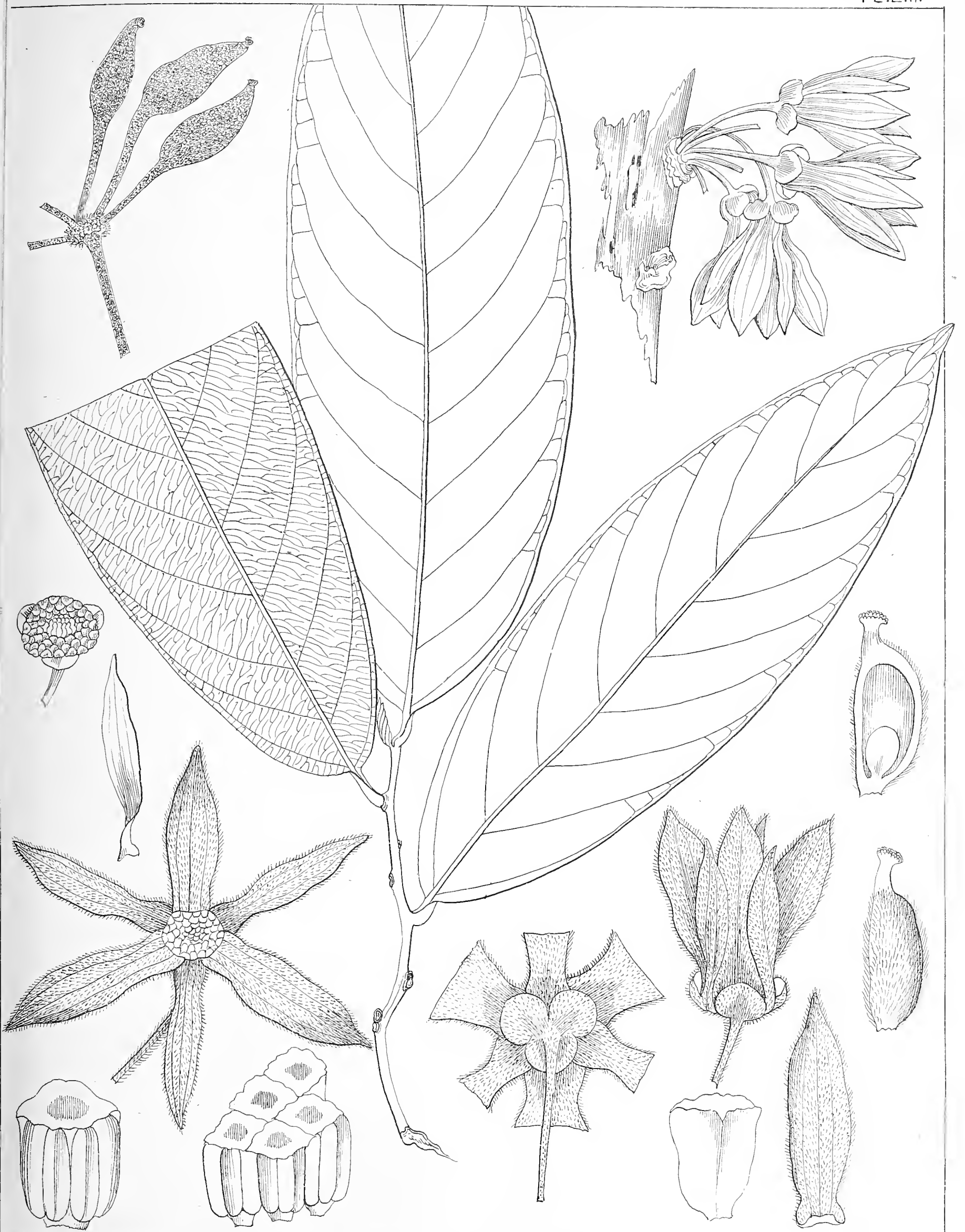
Dumphy, Lith.





*Unona pinnosa* (Dalzell)





GOVINDOO DEL.

DUMPHY LITH

*Polyalthia coffeoides* (Hoot. fil. et Thom.)











*Polyalthia suberosa* (Dun.)



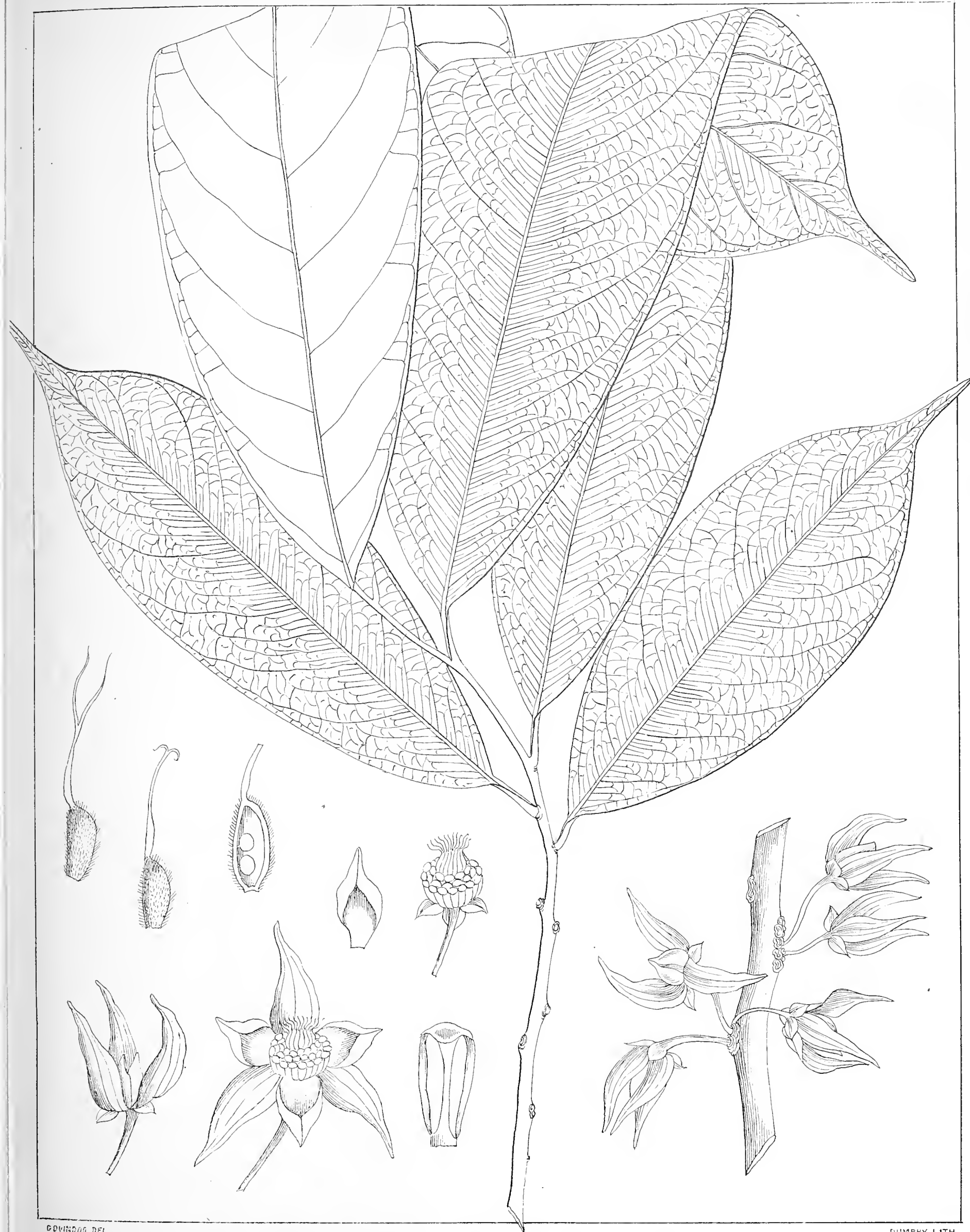


*Polyalthia acuminata* (Thw.)









*Goniotalamus Thomsoni* (Thur.)







*Goniothalamus Gardnerii* (Hook. fil. et Thoms.)



**GONIOTHALAMUS WYNADENSIS.** (Bedd.) An erect shrub, young parts very minutely fusco-pubescent otherwise glabrous, leaves oblong to oblongo-lanceolate suddenly acuminate attenuate at the base, 8-11 inches long by 3 broad, paler beneath, petioles 4-6 lines long peduncles 2-3 lines long with 2-3 bracts at the base axillary solitary, or from small knobs on the trunk, flowers  $\frac{3}{4}$  to 1 inch long, sepals rounded obtuse or sometimes acute, fusco-pubescent when young at length glabrous, outer petals shortly unguiculate fusco-pubescent on both sides at length glabrous and prominently veined, inner petals closely connivent glabrous inside, but furnished on the inner face with a deep hairy channel round the upper portion, torus and ovaries hairy, connectivum prolonged beyond the anthers into a blunt point, ovaries numerous, style elongate stigma 2-clawed, ovule solitary from the ventral suture just above the base, carpels oblong pointed  $\frac{1}{2}$  to 1 inch long.

Hab. Wynaad, in moist woods about Devala and Cheyrambady—elevation 2,500 to 3,500 feet. I formerly looked upon this as a new genus on account of its solitary ovule and curious style, and described it *and the following* under the name of *Atrutegia* (anagram on *Guatteria*); the ovule is not erect, but close to the base on the ventral suture, and *G. Wightii* has the same style, and the ovules are occasionally solitary though generally twin.

PLATE No. LXI.

**GONIOTHALAMUS CARDIOPETALUS.** (Dalz.) A shrub or small tree, young parts very minutely fusco-pubescent, leaves glabrous oblong to lanceolate suddenly or gradually acuminate, 4-12 inches long  $1\frac{1}{2}$  to 3 inches broad, petioles 4-6 lines long, peduncles 2-4 lines long axillary or a little above the axils solitary furnished with 4-6 bracts at the base, flowers when mature nearly one inch long densely sericeous when young, sparingly when adult, sepals rounded obtuse or acute, outer petals very thick and boat-shaped, the concavities receiving the angles of the mitriform cap, formed of the inner connivent petals, connectivum of the anthers prolonged into a blunt point, ovaries 13-25 hairy, style elongate stigma 2-clawed, ovule solitary from the ventral suture just above the base, carpels oblong pointed nearly 1 inch long. *Dalz. in Hook. Kew Journ. Bot. ii. 39;—H. and T. Fl. Ind. p. 108.—Uvaria obovata, Heyne ex Wall. Cat. 6471.*

Hab. North Wynaad and Canara from foot of the Ghats, up to 3,000 feet, very like the last species, except in the flowers.

PLATE No. LXII.

**GONIOTHALAMUS WIGHTII.** (H. f. et. T.) A small tree, young parts minutely fusco-pubescent, leaves glabrous, narrow lanceolate, acute at both ends, 4-6 inches long by about 1 inch broad, paler beneath, petioles  $\frac{1}{4}$  inch long, peduncles axillary solitary  $\frac{1}{2}$  an inch long thickened at the apex, furnished with several bracts at the base, ebracteolate above, flowers  $\frac{3}{4}$  to 1 inch long fusco-pubescent at length glabrous, sepals ovate acute, *persistent* exterior petals ovate, shortly and broadly unguiculate, prominently veined when dry, interior petals  $\frac{1}{2}$  an inch long ovate broadly unguiculate closely connivent into a mitriform cap, trapezoid fusco-pubescent on the outside and sericeous inside on the upper half, torus truncate, ovaries 14-18 sericeous, style elongate stigma 2-clawed, ovules 1-2 from the ventral suture—carpels oblong,  $\frac{2}{3}$  inch long, blackish, glabrous.—*H. and T. Fl. Ind. p. 106.*

Hab. Paupanassum and Attroymallay hills, South Tiunevelly, elevation 3,000 to 5,000 feet—very abundant.

PLATE No. LXIII.

**GONIOTHALAMUS RETICULATUS.** (Thw.) An erect shrub 6-8 feet high, younger parts strigose, leaves membranaceous, densely glanduloso-punctate, sparingly pilose beneath, and conspicuously reticulated, lanceolate or linear lanceolate, more or less abruptly acuminate, subrotund at the base, 6-11 inches long, 1-2 $\frac{1}{4}$  broad, petioles 2-3 lines long sulcate above and slightly winged (from the decurrent base of the leaf), peduncles 1 flowered, a little above the axils deflexed  $\frac{1}{4}$  inch long, bracteate at the base, sepals acute deciduous, outer petals linear triangular much attenuated at the apex twice the length of the mitriform cap formed by the inner petals, anthers very numerous, connectivum flat triangular dilated, ovaries oblong about 12 strigose 2 ovuled, style long clavate stigma dilated 2 lobed, lobes square carpels globose reddish brown, 1-2 seeded. *Thw. En. Pl. Zey. p. 7.*

Hab. Ceylon, in forests between Galle and Rutnapoora.

PLATE No. LXIV.

**GONIOTHALAMUS SALICINUS.** (H. f. et. T.) An erect shrub 10-12 feet, branches slender, young parts fusco-tomentose, leaves narrow lanceolate acute at the base, prolonged at the apex into a generally obtuse point, glabrous above, sub-pubescent beneath, 3-4 $\frac{1}{2}$  inches long,  $\frac{1}{2}$  to 1 inch broad, petioles scarcely  $\frac{1}{4}$  inch long strigose at length glabrous, peduncles solitary or a little above the axils,  $\frac{1}{4}$  inch long, furnished from the base to the middle with 3-4 minute oblong acuminate bracts, sepals ovate acuminate densely strigose,  $\frac{1}{4}$  inch long, exterior petals  $\frac{1}{2}$  an inch long narrow linear-triangular tomentose, interior ones connivent into a cap  $\frac{1}{4}$  inch long, ovaries 7-10, 2-ovuled, densely fusco-strigose style subulate stigma dilated 2-lobed. *Hook. and Thom. Fl. Ind. p. 106;—Thw. En. Pl. Zey. p. 7.*

Hab. Ceylon, 2-3,000 feet elevation.

PLATE No. LXV.

**GONIOTHALAMUS HOOKERI.** (Thw.) A middling sized tree (about 30 feet) leaves ovato-oblong shortly and obtusely acuminate, slightly narrowed at the base, smooth 6-13 inches long,  $2\frac{1}{2}$  to  $4\frac{1}{4}$  broad, petioles  $\frac{1}{2}$  to  $\frac{3}{4}$  inch long, peduncles equaling the petioles, axillary solitary or fascicled on the boughs or trunk, flowers pale green very sparingly rufo-hirsute, sepals persistent rotundate, acute,  $\frac{3}{4}$  inch long, exterior petals about 2 inches long  $\frac{3}{4}$  inch broad, rotundate at the base, slightly contracted above the middle, interior ones connivent into a mitriform cap about  $\frac{3}{4}$  inch high, tomentose within, ovaries about 25 style long subulate stigma small, bipartite, carpels shortly pedicellate size of small bean, seed shining testa brown. *Thw. En. Pl. Zey. p. 6.*

Hab. Ceylon, at an elevation of 1,000 feet—allied to *Goniothalamus Gardneri*.

PLATE No. LXVI.

*I have no specimen of G. Walkeri (H. f. et. T.) from Ceylon; the other described specimens are G. Malayannus (H. f. et. T.) from Malacca, G. sesquipedalis and Simonsii from the Khasya hills, and giganteus and Griffithii from the Malay Peninsula and Birmah. It is probable that more species will be detected in Southern India, in Birmah, and in the Malay Peninsula.*

**OROPHEA THOMSONI.** (Bedd. Linn. Trans. Vol. XXV.) A large shrub or small tree, glabrous except the inflorescence and the costa of the leaves beneath, leaves ovato-elliptic with a long obtuse acumination 2-4 inches long by  $1-1\frac{1}{2}$  broad, petioles 1-2 lines, peduncles very short axillary 3 flowered strigose, pedicels very short, sepals and petals strigose on the outside, sepals ovate or rounded, exterior petals rounded, interior with a long claw and puberulous at the apex on the inside, stamens 10-12 biseriata, ovaries strigose 5-6 biovulate, carpels size of a pea.

Hab. Anamallays (specimen figured), Travancore, and Tinnevely mountains and Madura District—elevation 1-4,000 feet.

PLATE No. LXVII.

**OROPHEA ERYTHROCARPA.** (Bedd. Linn. Trans. Vol. XXV.) A tree, trunk about 2 feet or so in girth, bark olive green, smooth, young parts aureo-pubescent, leaves elliptic acuminate  $2\frac{1}{2}$ -5 inches long 1-2 broad, at length quite glabrous above, sub-pubescent beneath, petioles 1-2 lines long, peduncles axillary or above the axils very variable in length, furnished with numerous bracts and bearing 3-5 pedicels (1 inch long) which are villous as are the peduncles and flower buds, and are each furnished with one deciduous bracteole, flowers about  $\frac{1}{2}$  an inch in diameter, stamens 12 in 2 series, outer row (always?) sterile and very small, ovaries 6, two ovuled carpels oblong pointed nearly 1 inch long bright red, seed 1 serobiculate.

Hab. Common in the Anagoondy Shola on the Anamallays—2,000 feet elevation (not observed elsewhere). In flower and fruit all the year.

PLATE No. LXVIII.

**OROPHEA UNIFLORA.** (H. f. et. T.) A shrub, branches slender glabrous or the young parts only slightly puberulous, leaves glabrous sub-coriaceous elliptic or oblongo-lanceolate obtusely acuminate, acute or rounded at the base  $1\frac{1}{2}$  to  $4\frac{1}{2}$  inches long  $\frac{3}{4}$  to  $1\frac{3}{4}$  broad, petioles 1-3 lines, peduncles axillary scarcely  $\frac{1}{4}$  inch long furnished with several bracts, and bearing 1 rarely 2 long slender pedicels  $\frac{1}{2}$  to 1 inch long, which are furnished with a minute deciduous bracteole at or above the middle, sepals rotundate or ovate acute, ciliate, exterior petals 3 lines long rotundate membranaceous, interior trapezoid obtuse or acute long clawed stamens 12 in 2 series, ovaries 6, two ovuled, stigma oblong, carpels globose blackish glabrous about  $\frac{3}{8}$  of an inch in diameter on pedicels 1-2 lines long.

Hab. The Western Ghats, from Coorg down to Travancore, in moist forests up to 3,500 or 4,000 feet—not very common, (the specimen figured is from Wynaad.)

PLATE No. LXIX.

**OROPHEA ZEYLANICA.** (H. f. et. T.) A shrub, or small tree much branched, young parts fusco-pubescent, leaves sub-coriaceous oval-oblong obtusely acuminate, 2-3 $\frac{1}{2}$  inches long  $1-1\frac{3}{4}$  broad, young ones puberulous beneath, petioles  $\frac{1}{2}$  inch long, peduncles axillary bearing several pedicels very variable in length and furnished with small bracteoles at their base, and together with the peduncles fusco-pubescent, flowers about  $\frac{1}{2}$  an inch in diameter, sepals orbicular obtuse or pointed, tomentose, exterior petals rotundate ciliate, interior trapezoid, thickened at the apex ciliate, stamens 6 in one row all fertile, ovaries about 15 glabrous obovate, ovules 2, stigma capitate, carpels globose smooth glabrous about  $\frac{1}{2}$  an inch in diameter on pedicels 1 line long.

Hab. In North Canara (specimen figured), and in Ceylon—2-3,000 feet elevation.

PLATE No. LXX.

**OROPHEA CORIACEA.** (Thw.) A middling sized tree, branches rigid, leaves very coriaceous ovato-lanceolate sub-acute, rounded at the base intensely green 2-5 inches long,  $1-2\frac{1}{4}$  broad, veins inconspicuous, petioles 1-2 lines long, peduncles  $\frac{1}{4}$  inch long 1 flowered, furnished at the base with 3-4 strigose bracts, flowers about 4 lines in diameter, sepals minute deltoid ciliate, exterior petals rounded obscurely acuminate, externally purple internally yellowish, interior petals purple joined into an obtuse mitriform cap  $1\frac{1}{2}$  lines high, stamens 9 (6 ext. 3 int.) ovaries 1-2, two-ovuled, carpels sessile subglobose oblique, 1-2 seeded. *Thw. En. Pl. Zey. p. 8.*

Hab. Ceylon, at an elevation of about 3,000 feet. Mr. Thwaites describes the ovary as solitary; I have found 2 in the only two flowers I have examined.

PLATE No. LXXI.

**OROPHEA ? OBLIQUA.** (H. f. et. T.) A middling sized tree, branches smooth glabrous, leaves oblong or lanceolate acute, rigidly coriaceous, unequal at the base, glabrous on both sides, 4-5 inches long  $1\frac{1}{4}$ -2 broad, shining above, pale beneath, petioles about 1 line long, flowers terminal 1-3 fascicled, or fascicled from the trunk, minute, glabrous purple very shortly pedicelled, sepals minute ciliate petals 6 subequal carnose, exterior open interior converging imbricate or subvalvate, stamens 6 in 2 series, ovaries 3, two-ovuled, stigma depressed torus plane, carpels sessile globose  $\frac{1}{2}$  inch in diameter smooth glabrous reddish 1-2 seeded, seeds rotundate sub-compressed testa shining brown scrobiculate. *Hook. and Thom. Fl. Ind. p. 112*;—*Thw. En. Pl. Zey. p. 8.*

Hab. Ceylon (near Galle), and in the Ratnapoora district at no great elevation.

The frequent imbrication of the petals is unlike any other species of Orophea, and this plant will probably have to be removed from the genus.

PLATE No. LXXII.

*In the "Flora Indica" two other species are described from Birmah, O. polycarpa and O. acuminata, and the genus is well represented in the Malay Archipelago—other species will probably be found in Southern India and in Birmah.*

**UNONA LAWII.** A large shrub, branches slender, young ones pubescent, leaves sub-coriaceous oblongo-lanceolate, rounded at the base, acuminate at the apex, sparingly sub-puberulous above at length glabrous, very pale beneath and pubescent,  $2\frac{1}{2}$ - $4\frac{1}{2}$  inches long,  $\frac{3}{4}$ - $1\frac{1}{2}$  broad, petiole  $\frac{1}{2}$  inch long pubescent, peduncles pubescent slender about 1 inch long, nearly opposite the leaves, furnished with 1 ovate small bract about the middle, sepals ovato-lanceolate subtomentose  $\frac{1}{2}$  inch long, exterior petals  $1\frac{3}{4}$ - $2\frac{1}{2}$  inches long scarcely  $\frac{1}{4}$  inch broad, adpressedly pubescent, rounded and concave at the base, interior petals similar but a little shorter, ovaries 2-3 ovuled, torus convex, depressedly concave at the apex, carpels oblong mucronate numerous, on pedicels  $\frac{1}{4}$  inch long, 1-3 articulated. *Hook. and Thom. Fl. Ind. p. 132.*

Hab. Wynaad, common about Manantoddy (specimen figured) and on the Carcoor ghat—elevation 2,500 to 3,000 feet. Concan. Very like Unona discolor, but with much narrower petals and fewer ovules.

PLATE No. LXXIII.

**UNONA ZEYLANICA.** (H. f. et. T.) An erect shrub, 3-6 feet, branches elongate slender, young parts pubescent, leaves elongate lanceolate acute at the base, acuminate at the apex, sub-membranaceous, glabrous on both sides or sub-puberulous beneath, 5-8 inches long  $1\frac{1}{4}$ -2 broad, petioles  $\frac{1}{2}$  inch long glabrous, peduncles on the trunk or axillary or above the axils solitary or twin slender  $\frac{1}{2}$ - $\frac{3}{4}$  inch long, squamellate at the base, the rest naked and glabrous, sepals oblongo-lanceolate puberulous on the outside 2 lines long, petals coriaceous glabrous, oblongo-lanceolate acute, exterior 1 inch long  $\frac{1}{4}$  inch broad, interior narrower  $\frac{2}{3}$  inch broad, stamens very broad, short, ovules 2-4, torus slightly excavated at the apex, globose in fruit, carpels 10-20 reddish (pedicels 2 lines long) contracted between the seeds, articulations 1-4 seeds oval smooth 4 lines long. *Hook. and Thom. Fl. Ind. p. 132*;—*Thw. En. Pl. Zey. p. 9.*

Hab. Ceylon, at an elevation of 1,500 to 3,000 feet.

PLATE No. LXXIV.

The other described Indian species are U. Dunalii (Wall) from the Concan, Chittagong, and Malay Peninsula; U. Desmos, stenopetala, and Dasymaschala from Birmah; U. dumosa from Sylhet; U. longiflora and præcox from Assam; and U. cauliflora from Singapore; which are all described in the Flora Indica.

**POPOWIA RAMOSISSIMA.** (H. f. et. T.) A shrub or small tree, branches rugulose, young parts ferrugineo-tomentose, leaves ovate or oblong with a long acumination, rounded or subcordate or attenuated at the base, veins and costa tomentose beneath and whole surface punctate, 2 to  $3\frac{1}{2}$  inches long  $\frac{3}{4}$  to  $1\frac{1}{2}$  broad, petioles 2 lines long, peduncles leaf-opposed filiform 3-4 lines long tomentose 1 flowered, furnished with a bract at the middle, flowers about  $\frac{3}{8}$  of an inch in diameter densely tomentose, sepals small ovate, outer petals much larger than the inner ones, interior concave thick ovate broadly sub-unguiculate at the base, inflexed at the apex, stamens about 24, connectivum truncato-capitate, ovaries 4-7 oblong, hairy at the base, style large obovate recurved, ovule solitary on the ventral suture. *Hook. and Thom. Fl. Ind. p. 105*;—*Guatteria ? ramosissima, Wall. Cat. 7, 294.*

Hab. South Tinnevely and South Travancore mountains, 3-5,000 feet elevation, common in the moist forests below Aghasteer peak. The locality of Penang given in the Flora Indica is probably a mistake—in all flowers that I have examined, I find the ovule solitary and from the ventral suture, not erect from the base; the position of the genus seems to be near Goniiothalamus. It is the only described Indian species of the genus.

PLATE No. LXXV.

**PHŒANTHUS MALABARICUS.** (Bedd.) A shrub or small tree, young parts ferrugineo-pubescent, leaves (adult) glabrous on both sides except the midrib below, oblongo-lanceolate gradually attenuated at the apex into a fine point, more or less cordate at the base, 4-7 inches long 1-2 inches broad, petioles 2 lines long peduncles ferruginous leaf-opposed or on the boughs between the leaves,  $\frac{3}{8}$  to  $\frac{1}{2}$  an inch long furnished with 2 bracts at the base, subclavate at the apex, sepals small ovate pointed densely ferrugineo-pubescent, outer petals about double the size of the sepals ovate acute, inner petals more than double the size of the outer, very thick and fleshy cymbiform inflexed and meeting at the apex, stamens about 170, connectivum truncate capitate, ovaries about 50 strigose, style obovate, ovules 2, rarely 1, on the ventral suture.

Hab. South Wynaad, abundant in the moist forests of the Tambacherry ghat about 2,000 feet elevation; the flowers are reddish, the venation of the leaves is the same as in *Goniolhamus*. This is the first species found on the Continent—one species is described from Malacca.

PLATE No. LXXVI.

**MITREPHORA HEYNEANA.** (Thw.) A small tree, leaves glabrous coriaceous, ovate to lanceolate, often attenuated into an obtuse point at the apex, or obtuse,  $1\frac{1}{2}$  to 3 inches long, by about 1 inch broad, shining above, pale beneath, veins oblique, venules reticulated, peduncles leaf-opposed short 1-3 flowered, sepals rotundate, puberulous outside, deciduous in fruit, exterior petals plane membranaceous parallel-veined  $\frac{2}{3}$  inch long, cuneato-lanceolate acuminate, puberulous on both sides, interior petals villous trapezoid acute, with a claw nearly  $\frac{1}{2}$  an inch long, torus strigose, stamens numerous all fertile broadly cuneate, ovaries 6-9 densely strigose 2-4 ovuled, carpels 4-8 ovoid or sub-globose  $\frac{1}{2}$  an inch long grey with hoary pubescence. *Orophea Heyneana*, *Hook. and Thom. Fl. Ind. p. 110*;—*Thw. En. p. 8*.

Common about the foot of the Tinnevely Hills, also in Ceylon; it flowers in July. The specimen figured is from the foot of the Chokampatty Hills in Tinnevely—it is the only species known from S. India. One is described from Assam, and two from the Malay Peninsula, and there are several species in Java.

PLATE No. LXXVII.

**UVARIA ZEYLANICA.** (Linn.) A scandent shrub, young branches adpressedly tomentose adult glabrous, leaves elliptic or lanceolate acuminate glabrous, 2 to  $3\frac{1}{2}$  inches long,  $\frac{3}{4}$  to  $1\frac{1}{4}$  broad, coriaceous rigid, veins inconspicuous, petioles 1-2 lines long, peduncles solitary terminal or leaf-opposed scarcely  $\frac{1}{2}$  an inch long tomentose, furnished with 2-3 small oblong bracteoles near the base, bud globose, flowers reddish about  $\frac{1}{2}$  an inch in diameter, sepals ovate membranaceous, petals ovato-oblong pubescent on the outside, glabrous within, stamens short oblongo-cuneate, torus subglobose hairy, carpels 4-12 ovoid or oblong, very shortly mucronulate at the apex, hoary with a tawny pubescence, seeds 3-6. *L. Sp. ii. 756*;—*Hook. and Thom. Fl. Ind. p. 102*;—*U. Heyneana*, *W. A. Prod. p. 8*;—*Guatteria montana*, *D. C. Prod. 1-94*;—*Rheed Mal. v. t. 17*.

The specimen figured is from the jungles near Quilon (in the plains), where it is common; it is also found in Malabar and Ceylon.

PLATE No. LXXVIII.

**UVARIA MACROPODA.** (H. f. et. T.) A large climber, young parts subscabrous, with a few stellate hairs, leaves coriaceous oblong or lanceolate, with a rather sudden acumination glabrous on both sides, shining above paler beneath, 3-6 inches long 1-2 inches broad, petioles  $\frac{1}{4}$  inch long, peduncles terminal solitary or leaf-opposed  $\frac{1}{2}$ -1 inch long, furfuraceous with stellate hairs as are the flower buds, sepals tuberculate on the outside, hairy within rotundate mucronate  $\frac{1}{2}$ - $\frac{2}{3}$  inch long, petals oval-oblong nearly 1 inch long tomentose on both sides (sometimes all joined at the base), stamens truncate at the apex connectivum scarcely produced beyond the anther ovules about 10 in 2 series, torus in fruit thickened subglobose, carpels 15-30 very long pedicelled (3-6 inches) oblong mucronate 1-2 inches long glabrous granulose 3-ribbed, reddish colored, seed compressed smooth white oblong 5 lines long. *Hook. and Thom. Fl. Ind. p. 101*;—*Thw. En. Pl. Zey. p. 6*.

Hab. Ceylon, up to 1,500 feet elevation. The petals are all joined at the base in the specimen figured—(the only open flower I have seen.)

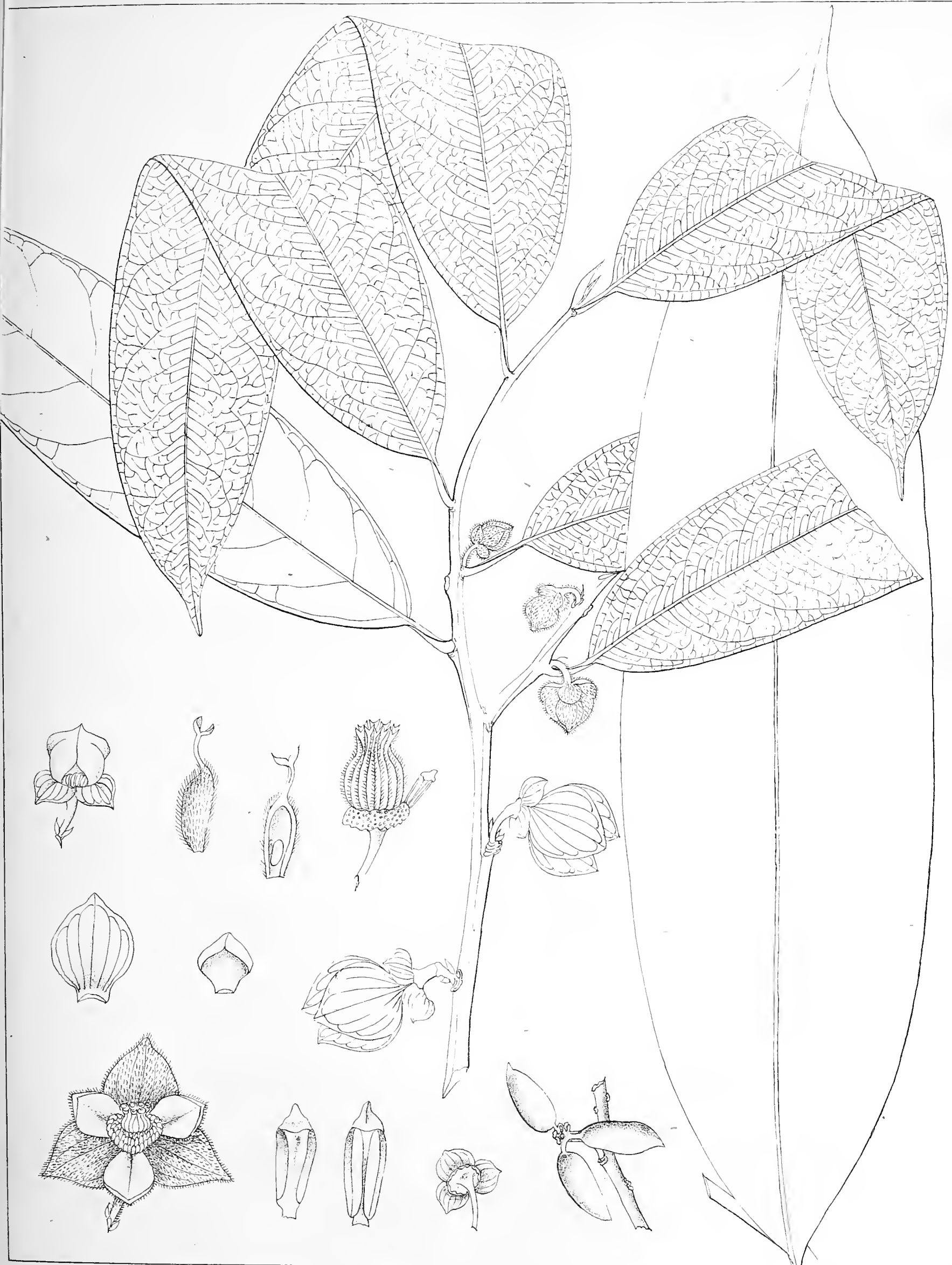
PLATE No. LXXIX.

**UVARIA SPHENOCARPA.** (H. f. et. T.) A scandent shrub, branches elongate flexuose slender, young parts fulvo-tomentose, leaves narrow obovate or cuneato-oblong ending in a long acumination, rotundate or retuse at the base, above minutely scabrous, beneath stellato-tomentose 3-5 inches long  $1\frac{1}{4}$ - $2\frac{1}{4}$  broad, petiole 1-2 lines long, peduncles leaf-opposed,  $\frac{1}{2}$  an inch long tomentose 1 flowered, bracts rotundate imbricate squamiform, flowers dull yellowish green scarcely  $\frac{1}{2}$  an inch in diameter, sepals joined into an obtusely 3 lobed or subentire cup densely fulvo-tomentose, subsistent in fruit, petals oval obtuse cinereo-tomentose, torus in fruit depresso-globose ovaries elongate, ovules about 10 in 2 series in the lower half, stigma sub-bilobed involute, carpels 8-10 or less, 1 inch long rounded at the apex densely tomentose, above the middle irregularly tuberculate.—*Hook. and Thom. Fl. Ind. p. 99*;—*Thw. En. Fl. Zey. p. 6*.

Hab. Ceylon, up to 1,500 feet elevation.

PLATE No. LXXX.



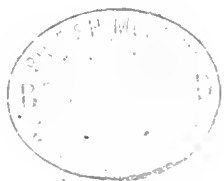


Govindoo, del.

*Goniothalamus Wynadensis* (Radd.)

Dumphy, Lith.









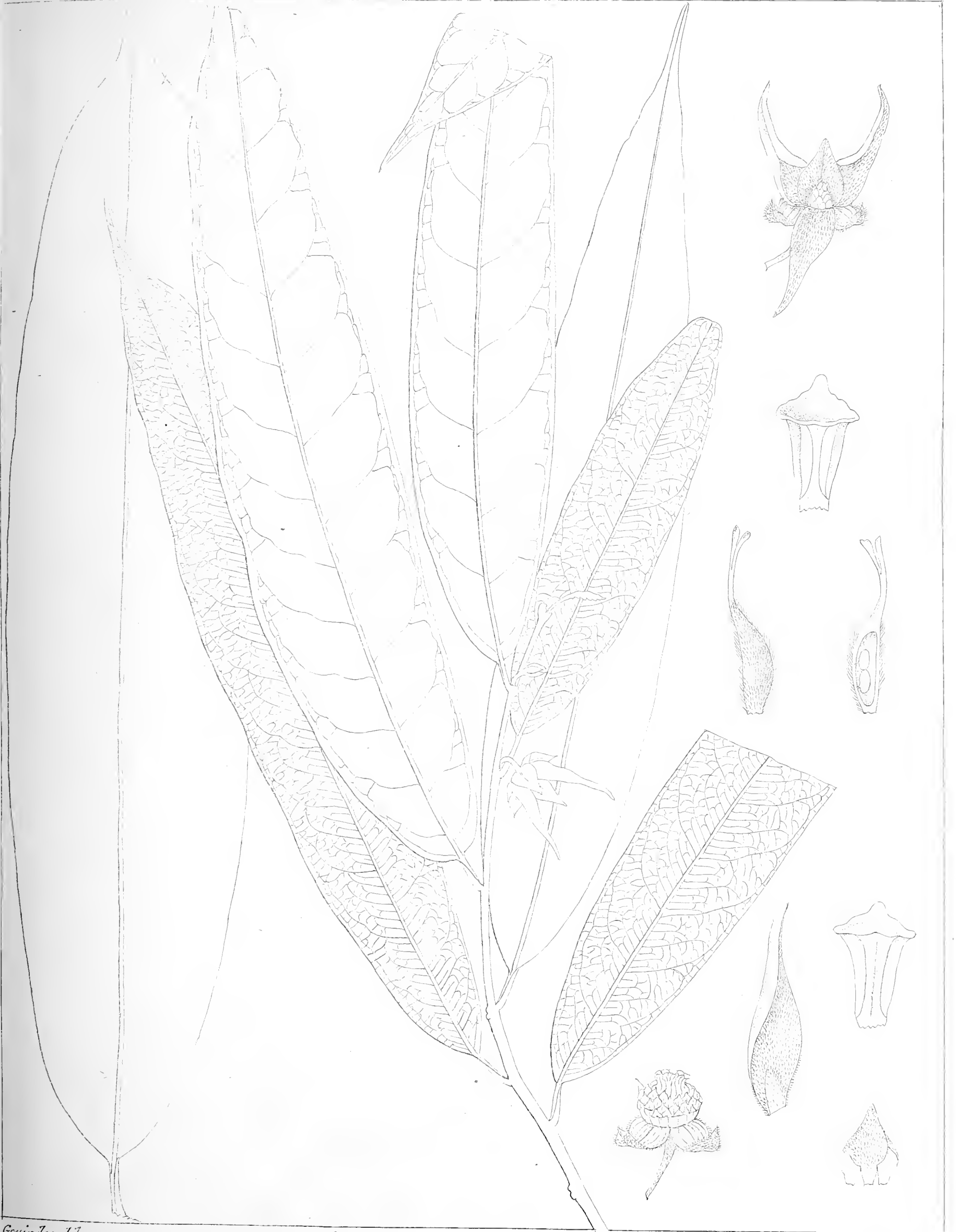


Govindoo, del.

*Goniothalamus Nightii* (Hook. fil. et Thoms.)

Dumphy, Lith.





Govindoo, del.

*Goniothalamus reticulatus* (Thw.)

Dumphy, lith.





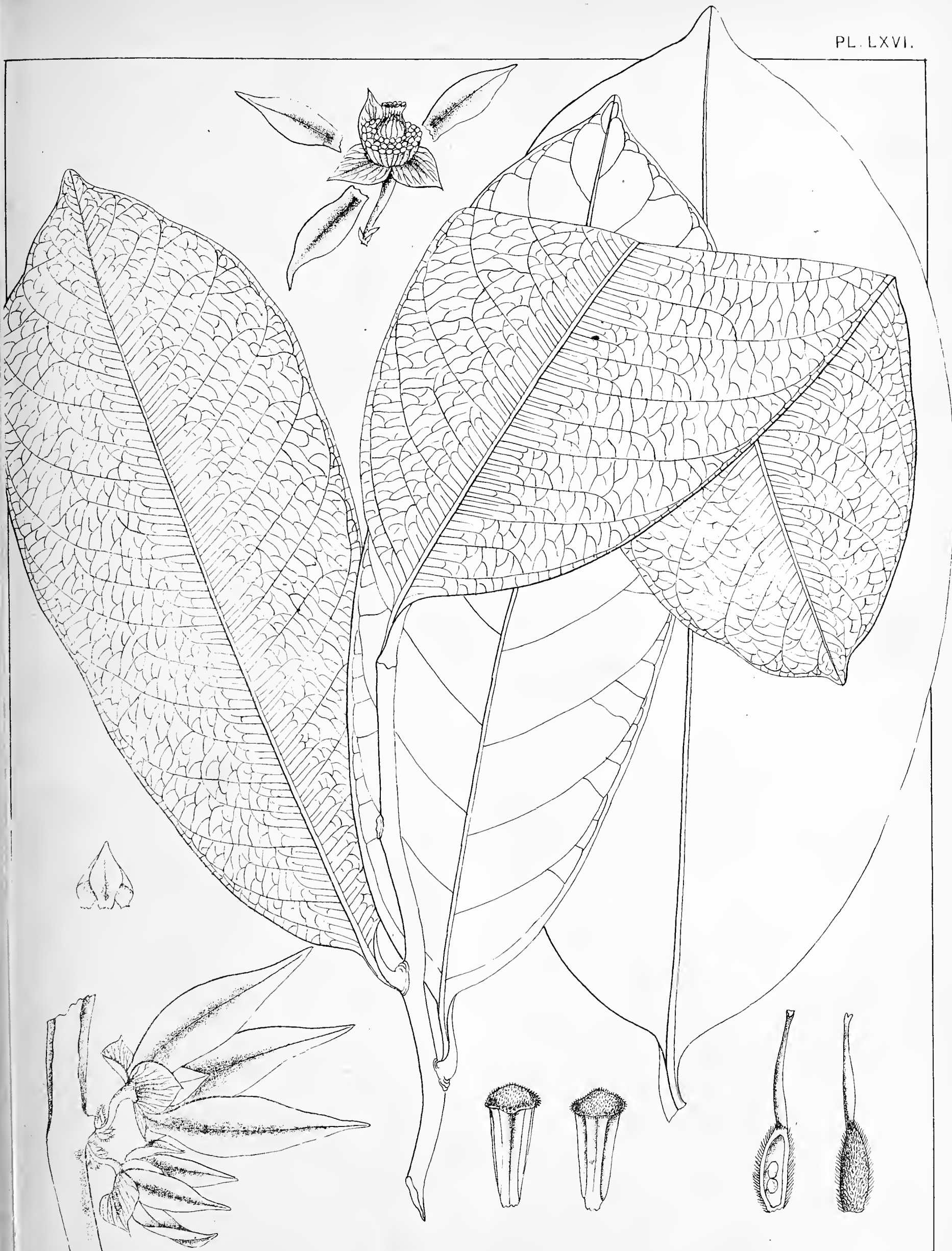
Goniados, del.

*Goniothalamus salicinus* (Hook. fil. et Thoms.).

Dumphy, lith.







Lonicera hookeri

*Lonicera hookeri* (Thunb.)

Dumphy, Lith.









Spencer, del.

*Orophea erythrocarpa* (Bedd.)

Dumphy, lith.





*Orophea uniflora* (Hook. fil. et Thoms.)







Garwood, del.

*Orophea zeylanica* (Hook. fil. et Thoms.)

Dunphy, lith.









*Crophaea obliqua* (Hook. fil. et Thoms.)





Govindoo, del.

*Unona Lauii* (Hook. fil. et Thoms.)

Dunphy, Lith.







Levandos, del.

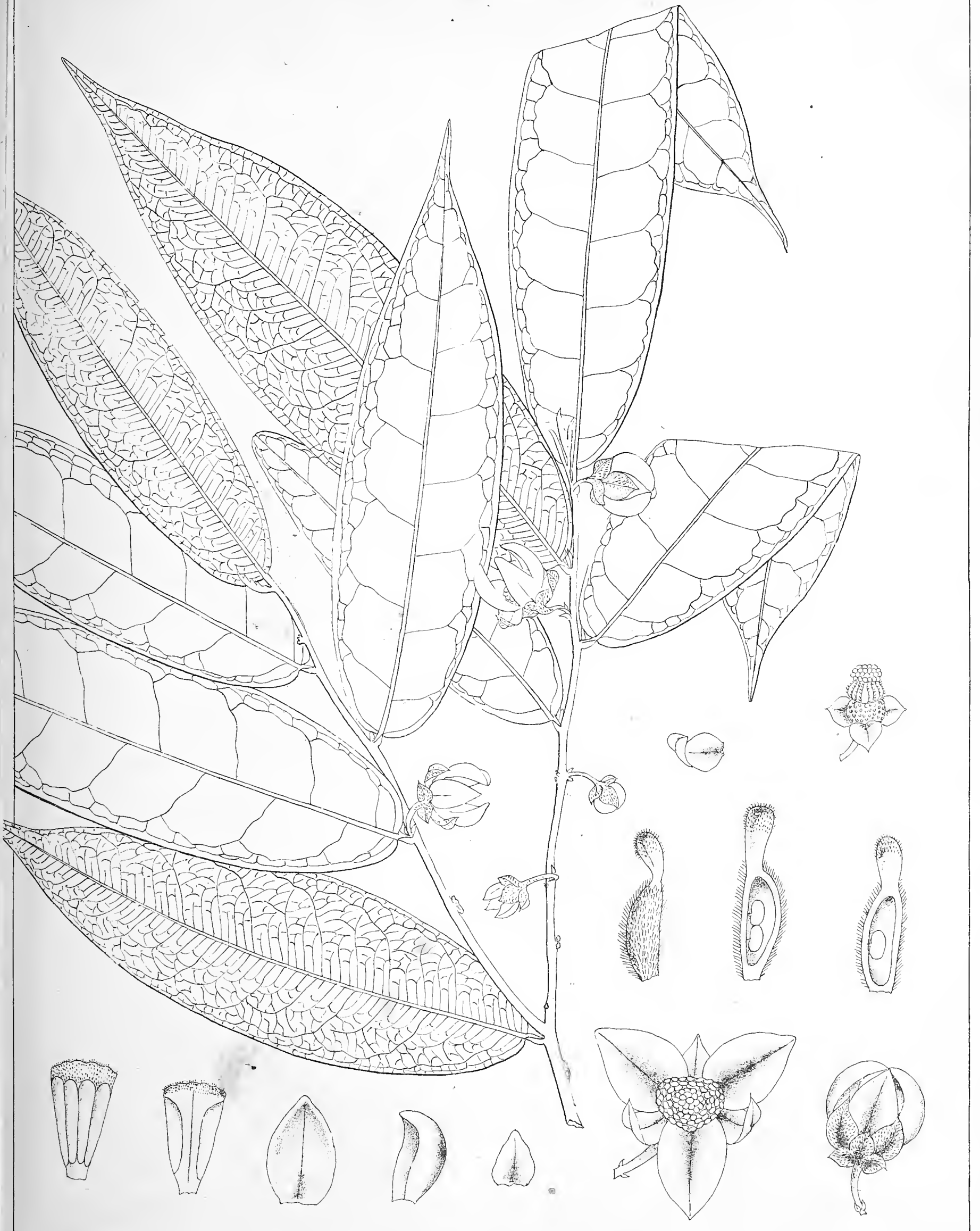
*Unona zeylanica* (Hook. fil. et Thoms.)

Dumphy, Lith.









Lyons, del.

*Phoranthus Malabaricus* (Redd.)

Dunphy, Lith.





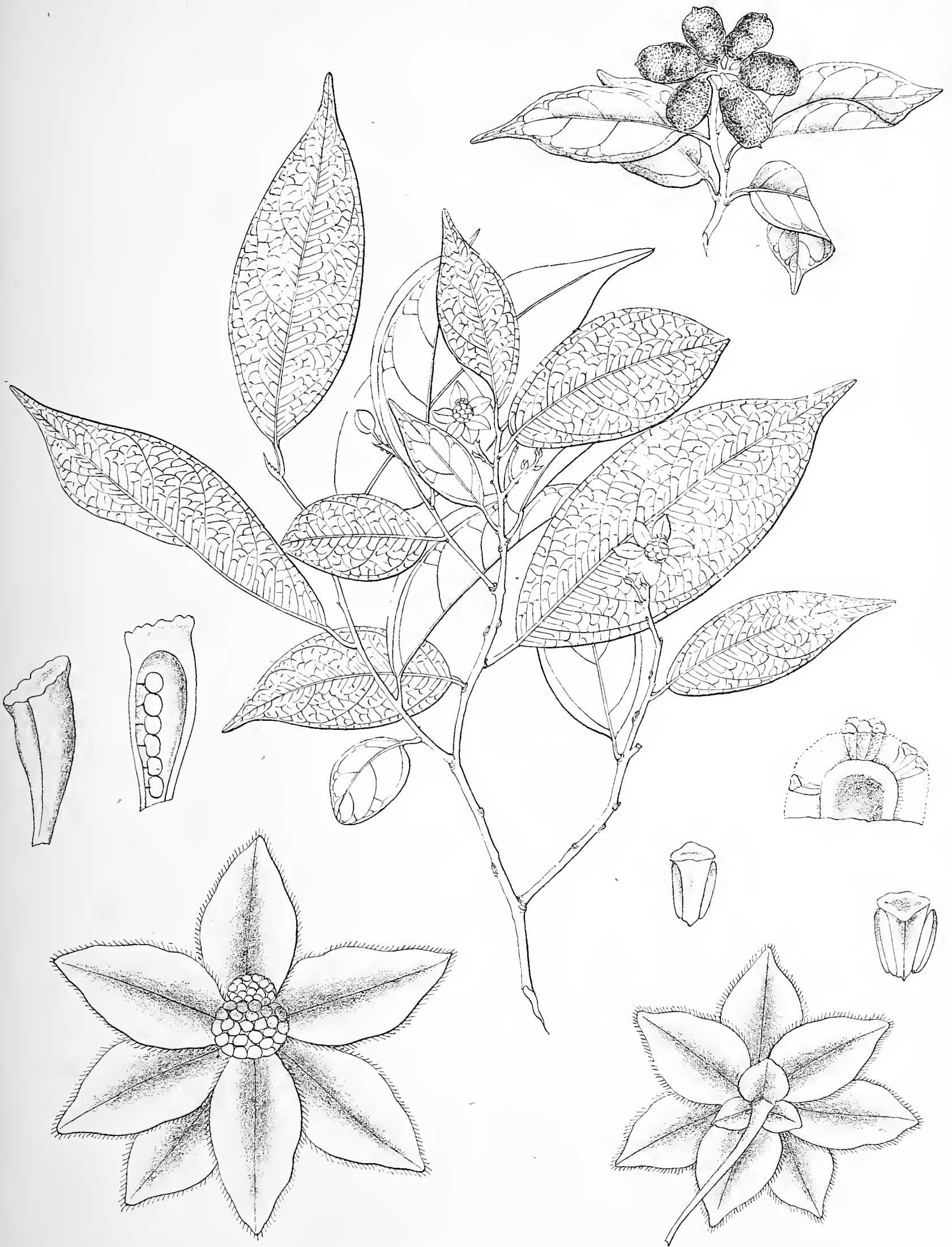
Garindoo, del.

*Mikephora Heyneana* (Hook. fil. et Thoms.)

Dumphy. Lith:





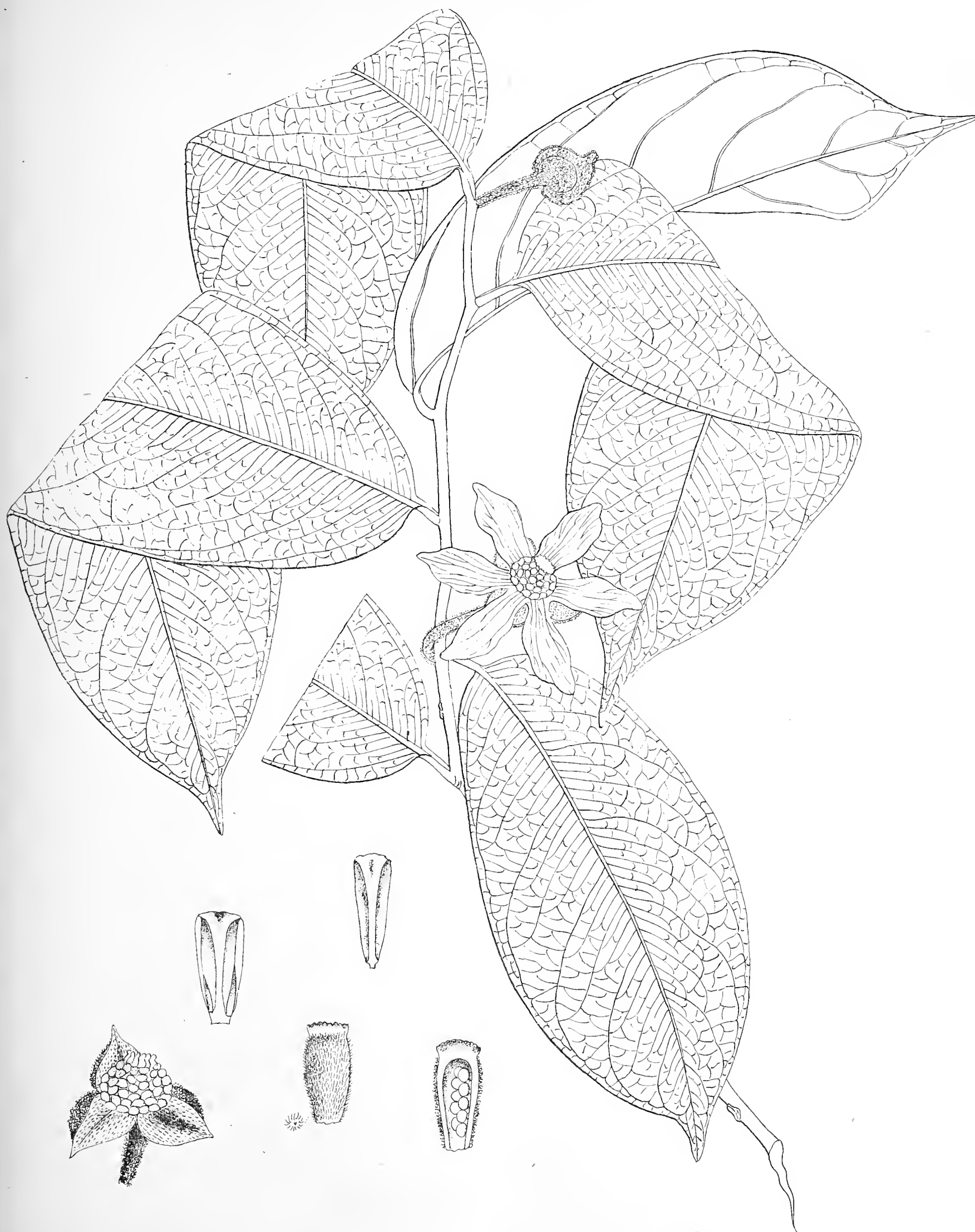


Govindoo, del.

*Uvaria zeylanica* (Linn.)

Dumphy, lith.











## ANONACEÆ.

**UVARIA MACROPHYLLA.** (Roxb.) A scandent shrub, branches ferrugineo-tomentose, leaves coriaceous (or young ones membranaceous) oval or broadly oblong cordate at the base abruptly acuminate, nearly glabrous or only minutely puberulous above, fusco-tomentose beneath 6-12 inches long, 3-6 broad, petioles  $\frac{1}{4}$  to  $\frac{1}{2}$  inch long, peduncles leaf-opposed many flowered tomentose, an inch long, furnished with numerous oval tomentose bracts, pedicels 1 inch long with a bracteole at the middle, bud globose densely cinereous, sepals united up to the middle, petals oval reddish  $\frac{2}{3}$  inch long more or less united at the base, stamens very numerous, all fertile (always ?) connectivum produced beyond the anther into a large foliaceous process, ovaries very numerous hairy gradually broader upwards with a truncated style, carpels 15-20 inserted on to the subglobose torus oval-oblong or subglobose 1-1 $\frac{1}{2}$  inches long, nearly black when ripe, pedicels scarcely 1 line long, seed in 2 series. *Roxb. Fl. Ind. ii. page 663*;—*Hook. and Thom. Fl. Ind. p. 97*;—*U. cordata, Wall. U. rufescens, Alph. DC.*

Ceylon, S. E. of the Island common (specimen figured), Sylhet, Chittagong, Ava, Tenasserim, Malay Peninsula and Java.

## PLATE No. LXXXI.

**UVARIA SEMECARPIFOLIA.** (H. f. et T.) A scandent shrub, branches fulvo-tomentose, leaves oblong or obovate-oblong, subcordate at the base, obtuse at the apex with a short mucro, coriaceous rigid, puberulous above, chiefly on the costa and nerves, at length glabrous, pubescent beneath with stellate hairs, 6-10 inches long 2 $\frac{1}{2}$ -4 $\frac{1}{2}$  broad, petioles  $\frac{1}{4}$  inch, peduncles leaf-opposed about  $\frac{1}{2}$  inch long, furnished with numerous round bracts, 3-6 flowered, pedicels about  $\frac{1}{2}$  inch long, bracteolate about the middle, sepals cinereous united into a slightly 3-lobed or subentire cup, petals ovate or oblong cinereous, stamens truncated at the apex, connectivum not produced beyond the anthers; ovaries numerous longitudinally striated hairy, style oblique subrotund; carpels oval to subglobose fulvo-tomentose nearly an inch in diameter on pedicels  $\frac{1}{2}$  inch long. *H. f. et T. Fl. Ind. p. 97.*

Ceylon, central and S. E. parts of the Island up to 3,000 feet elevation (specimen figured), also in Malacca ?

*Uvaria Narum*, a common Peninsula species, has been figured by Dr. Wight. *U. lurida* *H. f. et T.* occurs in the Peninsula and in Assam, but I have no specimens; the following species described in the Flora Indica, are all scandent shrubs. *U. purpurea* *Bl.*, *hirsuta* *Jack*, *dulcis* *Dunal*, *Lobbiana* *H. f. et T.*, *subrepanda* *Wall.*, and *parviflora* *H. f. et T.*, all from the Malay Peninsula; *bracteota* *Roxb.*, from Sylhet and Tenasserim, *Hamiltonii* *H. f. et T.* from Behar and Assam, *ferruginea* *Ham.* from Birma, and *micrantha* *H. f. et T.* from Birmah and Malay.

I have observed one or two species, lofty climbers, in the forests of Malabar and the Anamallays, but I have not obtained them in flower.

## PLATE No. LXXXII.

**POLYALTHIA MOONII.** (Thw.) A shrub 8-10 feet, young parts fulvo-strigose, branches rigid, bark rugose white speckled, leaves lanceolate with a longish acumination, rounded and oblique at the base 3-6 inches long  $\frac{3}{4}$  to 2 inches broad, petioles about 1 line long, peduncles cauline or leaf-opposed; 1-1 $\frac{1}{2}$  inches long furnished with 2-3 bracts at the base; fulvo-strigose, 1-3 flowered, flowers reddish 4 lines across slightly pilose on the outside, sepals acuminate 1 line broad, exterior petals rounded acuminate, inner ones rounded obtuse and a little broader than the outer, stamens very numerous cuneate closely compact, ovaries about 14 oblong pilose, style rounded slightly recurved  $\frac{1}{2}$  length of ovary, ovules 1-2 from the ventral suture very near the base, carpels globose 1-seeded or oblong 2-seeded, 2-4 lines long, pedicels about 2 lines long. *Thw. En. Pl. Zey. p. 9.*

Ceylon.

*Polyalthia cerasoides* *Dunal*, a common tree in the Peninsula, has been figured in the Flora Sylvatica, and Dr. Wight has figured *P. longifolia* (*Wall.*), a common avenue tree at Madras. The following species, described in the Flora Indica, are all from Northern India, Birma, and the Malay Peninsula:—*P. bifaria* *DC.*, *Jenkinsii* *H. f. et T.*, *Simiarum* *Ham.*, *membranacea* *DC.*, *nitida* *DC.*, *biglandulosa* *Bl.*, *costata* *H. f. et T.*, *cinnamomea* *H. f. et T.*, *obliqua* *H. f. et T.*, *cauliflora* *H. f. et T.*

## PLATE No. LXXXIII.

**MILIUSA MONTANA.** (Gardn.) A shrub 2 to 8 feet much branched, all the younger branches densely fusco-pubescent, leaves ovate to oblong or elliptic with an unequal cordate base, and generally with a blunt acumination ciliate on the margin glabrous above except the costa, pubescent on all the nerves beneath, 1 $\frac{1}{2}$  to 3 inches long by  $\frac{3}{4}$  to 1 inch broad, petioles about 1 line broad peduncles solitary axillary  $\frac{2}{8}$  to  $\frac{3}{8}$  of an inch long, furnished with 2-3 bracts at the base and often with 1 about  $\frac{1}{3}$  up, flowers  $\frac{1}{2}$  to nearly 1 inch long, dull cream colored sepals and outer petals all equal or subequal ciliate linear-lanceolate acute 1-2 lines long, inner petals glabrous or subglabrous  $\frac{1}{2}$  to nearly 1 inch long and  $\frac{1}{4}$  inch broad, stamens very numerous in 5-6 series round the cylindrical strigose torus, ovaries about 14 sparingly furnished with distant hairs, stigma oblong about  $\frac{1}{2}$  the size of the ovary, ovules 2 on the ventral suture, carpels sessile or on short stalks, glabrous? *Gard. MSS. in Herb. Hook.*;—*Hook. and Thom. Fl. Ind. p. 148.*



In the moist forests of the Anamallays (Ponachy waterfalls) 4,000 feet (specimen figured), in the ravines on the Carcoor ghat (2,500 feet), Malabar, also in Ceylon. None of my specimens are in fruit.

PLATE No. LXXXIV.

**MILIUSA INDICA.** (Lesch.) A large shrub, branches tomentose, at length sub-glabrous, leaves slightly coriaceous very variable in shape, from sub-rotund to oblong or ovate rounded or cordate at the base, obtuse or subacute at the apex, pubescent beneath, and also above when young, but at length glabrous and shining above,  $1-2\frac{1}{2}$  inches long,  $\frac{3}{4}$  to  $1\frac{1}{4}$  broad, petioles pubescent scarcely 1 line long, flowers  $\frac{1}{2}$  to  $\frac{3}{4}$  inch long, exterior petals about twice the size of the very small sepals or sub-equal in length, interior ones ovate, nerved pubescent deep purple, torus strigose, stamens numerous in 3 series, ovaries numerous densely pilose oblong, stigma oblong, carpels numerous, sessile, densely cinereo-tomentose. *W. A. Prod.* I. 10;—*Hook. and Thom. Fl. Ind.* p. 149.

Foot of the Tinnevely ghats about Chokampatty and elsewhere (specimen figured) varying,  $\beta$ . subglabra. Foot of the Pulney Hills, Denkinacottah Hills, Mysore. More glabrous and generally with smaller flowers.

PLATE No. LXXXV.

**MILIUSA WIGHTIANA.** (H. f. et T.) A small tree, branches glabrous, leaves narrow oblongo-lanceolate or linear-oblong, with a longish obtuse acumination attenuate or slightly rounded at the base, glabrous on both sides,  $1\frac{1}{2}$  to 4 inches long,  $\frac{3}{4}$  to 1 inch broad, petioles 1-2 lines long, peduncles slender, 1 to  $1\frac{1}{2}$  inch long (elongating in fruit) furnished with about 3 bracts at the base and 1 below the middle, sepals and exterior petals very small, equal, ciliate, interior petals about  $\frac{1}{2}$  an inch or a little more long, glabrous or subglabrous, stamens about 22 in 3 series, ovaries glabrous about 20, style oblong nearly as long as the ovary, ovules 1-2 on the ventral suture, fruit bearing peduncles 2 inches long, pedicels  $\frac{1}{4}$  to  $\frac{1}{2}$  an inch, carpels glabrous globose 1 seeded, or oblong 2 seeded, the latter  $\frac{1}{2}$  an inch long, all mucronate. *Hook. and Thom. Fl. Ind.* p. 149.

On the banks of streams in moist forests on the Tinnevely and Travancore Hills, South of Courtallum, elevation 3,000 to 5,000 feet. All the flowers I have examined were hermaphrodite.

PLATE No. LXXXVI.

**MILIUSA VELUTINA.** (Dunal.) A good sized tree, branches densely tomentose, leaves ovate or oblong, cordate at the base acute or obtuse at the apex, velvety-tomentose on both sides 3-6 inches long,  $\frac{3}{4}$  to 4 broad, petiole 2-3 lines long, peduncles short, pedicels 3-6, elongate, slender, densely tomentose ebracteate 2-4 inches long, flowers hermaphrodite, densely tomentose, sepals ovate equal to the exterior petals, interior petals broadly ovate  $\frac{1}{4}$  to  $\frac{1}{2}$  inch long, densely tomentose outside, subglabrous within and blackish, stamens numerous in 4-5 series, ovary downy 2 ovuled, carpels purplish-black, puberulous about  $\frac{1}{2}$  an inch long on very short pedicels, seeds 1-2.

In the Godavery forests and Sircar mountains, also in Bengal and Birmah.

PLATE No. LXXXVII.

**MILIUSA NILAGIRICA.** (Bedd.) A large shrub, perfectly glabrous, branches rugose tuberculate, leaves coriaceous glabrous, linear-lanceolate to lanceolate or elliptic, attenuate at both ends with an obtuse point at the apex 2-4 inches long by  $\frac{3}{4}$  to  $1\frac{1}{4}$  broad, petioles  $\frac{2}{3}$  or  $\frac{3}{8}$  of an inch long, peduncles axillary furnished with 2-3 bracts at the base glabrous, from a little longer to 3 times as long as the petioles, sepals and exterior petals equal or subequal ciliate, interior petals  $\frac{2}{3}$  of an inch long, glabrous except the thickened margin near the apex, stamens 8 in a single series, ovaries glabrous about 13, stigma oblong or globose,  $\frac{1}{3}$  the size of the ovary glabrous, ovules 1-2 on the ventral suture, carpels globose the size of a large pea, quite glabrous on pedicels, 2-3 lines long.

The northern slopes of the Nilgiris (5,000 feet elevation.)

PLATE No. LXXXVIII.

**MILIUSA ZEYLANICA.** (Gard.) A small tree, branches rugose tuberculate and together with all the young parts fusco-tomentose, leaves coriaceous, rigid opaque, oblongo-lanceolate, obtuse acute, or acuminate, rounded at the base and often oblique adpressedly puberulous beneath, 2-4 inches long, by  $1-1\frac{1}{2}$  broad, petiole 2 lines long more or less tomentose, peduncles short,  $\frac{1}{2}$  the length of the flowers, tomentose furnished with bracts at the base, flowers hermaphrodite, sepals and exterior petals tomentose about equal, oblong or acute, pilose, ciliate, interior petals linear oblong adpressedly puberulous, torus strigoso-pilose, ovaries numerous, strigose broadly oval, stigma oval, ovules 1-2 on the ventral suture, carpels subsessile glabrous, minutely granulate.—*Hook. and Thom. Fl. Ind.* p. 149;—*Thw. En. Pl. Zey.* 11.

Ceylon, south of the island, at no great elevation. Very similar to *M. montana*, but distinguished by its larger more acute leaves shorter peduncles and narrower petals; both these species and *M. Indica* are all closely allied.

Three other species are described in the Flora Indica, viz. *Wallichiana*, *Roxburghiana*, and *macrocarpa*, all from Sikkim or Sylhet.

PLATE No. LXXXIX.

**ALPHONSEA ZEYLANICA.** (H. f. et T.) A tree, young branches puberulous, buds fusco-sericeous, leaves coriaceous-glabrous on both sides shining above, petiole and costa beneath pubescent when young, lanceolate or elliptico-lanceolate, acute at the base, often with a long blunt acumination  $2\frac{1}{2}$ -4 inches long,  $\frac{3}{8}$ - $1\frac{1}{4}$  broad, petioles slender  $\frac{1}{4}$  inch long, peduncles leaf-opposed or above the axils, scarcely  $\frac{1}{4}$  inch long tomentose, pedicels 1-3 about  $\frac{1}{2}$  an inch long pubescent, with minute ovate bracts at the base, petals  $\frac{3}{8}$  inch long puberulous, stamens about 30 in 3 series, ovaries 5-6, style depressed, torus in fruit large globose, carpels subglobose irregularly tuberculate fulvo-tomentose  $1\frac{1}{4}$  inch in diameter, pedicels thick  $\frac{1}{4}$  to  $\frac{1}{2}$  an inch long, seeds 4-6 in a single series. *Fl. Ind. Hook. Fil. et Thom. p. 153*;—*Uvaria lutea*, *W. and A. Prod. 1, 8.* (excl. syn.)? *Gnatteria acutiflora*, *Wall, Cat. 6438 D.*

Ceylon—elevation 2-3,000 feet (specimen figured.) Travancore and Tinnevely hills.

PLATE No. XC.

**ALPHONSEA LUTEA.** (H. f. et T.) A large tree, branches glabrous, buds fulvo-tomentose, leaves oval-oblong rounded or attenuated at the base, obtusely acuminate coriaceous, glabrous on both sides and very shining above, pale beneath, young ones puberulous about the costa beneath, 3-4 inches long,  $1\frac{1}{2}$ - $2\frac{1}{2}$  broad, petioles 2-3 lines long, flowers congested in several flowered leaf opposed fascicles, sessile or shortly peduncled, pedicels short fulvo-tomentose, sepals rounded deciduous, petals externally pilose, scarcely  $\frac{1}{2}$  an inch long, ovate, exterior a little the larger and pilose within on the upper portion, the interior glabrous on the inside, stamens numerous in 3 rows, ovaries 4 strigoso-pilose, style very short, torus in fruit dilated globose, carpels 4-6, broadly oval, obtuse at both ends, very shortly pedicelled  $1$ - $1\frac{1}{2}$  inches long, fulvo-puberulous seed 3-6. *H. et T. Fl. Ind. p. 153*;—*Uvaria lutea*, *Roxb. Fl. Ind. ii. 666*—(non W. A.)

In Ceylon, Reigam corle. C. P. 3826 (specimen figured). In Orissa, Sylhet and Ava. In all the flowers I have examined of the Ceylon plant, there are only 4 ovaries and the style is very short, almost truncated. Can it be distinct from the India and Birmah plant?

PLATE No. XCI.

**ALPHONSEA MADRASAPATANA.** (Bedd.) A tree, leaves glabrous, very shining on the upper surface, lanceolate or elliptico-lanceolate or occasionally oblong or ovate, coriaceous prominently reticulated beneath, obtuse at the apex, about  $3\frac{1}{2}$  inches long by  $1\frac{1}{2}$  broad, petioles about  $\frac{1}{4}$  inch long, rugulose glabrous or slightly puberulous, peduncles leaf-opposed or above the axils, very short, pedicels 1-6,  $\frac{1}{4}$  to  $\frac{1}{2}$  an inch long, puberulous furnished with a bract below the middle, flowers bright yellow, sepals ovate small, petals about  $\frac{3}{8}$  of an inch long, puberulous on the outside, stamens 12 in 2 series, ovaries 3-4, style subglobose, slightly curved, ovules about 8 in 2 rows, carpels ovoid fulvo-tomentose.

In ravines on the Tripatty hills and similar localities in North Arcot and Cuddapah, abundant on the banks of streams, a very handsome shade-yielding tree. I have specimens of apparently the same tree (only in fruit) from the Tinnevely mountains.

*A. ventricosa* from Chittagong is the only other described Indian species.

PLATE No. XCII.

RUBIACEÆ.

**PRISMATOMERIS ALBIDIFLORA.** (Thw.) A shrub or small tree glabrous, leaves oblong to elliptic, ending in a sudden acumination 3-4 inches long by about  $1\frac{1}{2}$  inch broad, petioles about  $\frac{1}{4}$  inch long, peduncles axillary 2-4 together  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inch long, calyx cupuliform slightly 5 divided at the apex segments of the corol fleshy, filaments attached to the tube of the corol close to the base.—*Thw. En. Pl. p. 154*, and in *Hook. Kew. Journal Bot. VIII. p. 268.*

Ceylon, southern and central districts, up to 4,000 feet elevation.

PLATE No. XCIII.

**LEUCOCODON RETICULATUM.** (Gardn.) An epiphytic scandent shrub, leaves oblongo-lanceolate acute at both ends, 3-6 inches long, 1-2 inches broad, petioles  $\frac{1}{2}$ - $\frac{3}{4}$  inch long, stipules membranaceous oblong, bidentate at the apex, connate at the base, about one inch long, involucre large, campanulate shortly pedunculate terminal solitary white turning green dentate on the margin, calyx tubular subentire, corol infundibuliform, white about 8 lines long, lobes lanceolate acute, filaments very short attached to the centre of the anther, style simple stigma 2 lobed, lobes oblong obtuse, bacca white, 4 lines long, seed striated brown, black in the middle, about  $\frac{1}{2}$  a line long. *Gard. Calc. Journal of Nat. Hist. Vol. VII. p. 5.*—*Thw. En. Pl. Zey. p. 138.*

Ceylon. Central districts at 3,000 to 5,000 feet elevation.

PLATE No. XCIV.

**SCHIZOSTIGMA HIRSUTUM.** (Arnt.) Herbaceous decumbent or subrepent hirsute, stems simple, leaves opposite oblongo-lanceolate, entire pilose pale beneath, 2-3 inches long by 1 or a little more broad, stipules broadly ovate acute membranaceous, flowers white axillary 1-3 together about 1 inch long, subsessile with 2 bracts at the base, style filiform much exserted, cleft into 4-7 divisions (according to the number of the cells of the ovary) filaments short attached to the centre of the anther, berry as large as a small cherry. *Arnt. Ann. of Nat. Hist.* iii. p. 20 ;—*End. Suppl.* I. p. 1393 ;—*Thw. En. Pl. Zeyl.* p. 139.

Ceylon. South of the Island, up to an elevation of 2,000 feet.

PLATE No. XCV.

**STYLOCORYNE ELLIPTICA.** (Thw.) A small glabrous tree 12 feet, leaves subcoriaceous entire elliptic or oblong acuminate attenuated at the base turning black in drying, 4-10 inches long, by 2-3 broad, petioles  $\frac{1}{2}$ -1 $\frac{1}{2}$  inches long, stipules large oblong acute convolute, peduncles terminal 3 together, pedicels 3 about as long as the peduncles, bracteoles few about the base of the pedicels small squamæform, calyx entire or slightly toothed, tube about 1 line long, corol white, tube 12 lines long hairy in the jaws within lobes oblong obtuse, 6-8 lines long, anthers sessile affixed by their middle, style shorter than the tube, stigma 2 cleft lobes acute ; berry about 1 inch long fleshy about 10 seeded. *Coffea ? elliptica.* *Thw. En. Pl. Zey.* p. 154 ;—*Stylocoryne elliptica*, *l. c.* p. 421.

Ceylon, at no great elevation.

PLATE No. XCVI.

**IXORA CALYCINA.** (Thw.) A small tree, glabrous, leaves ovate or lanceolate acuminate cordate rounded or acute at the base, 1 $\frac{1}{2}$ -4 inches long by  $\frac{1}{2}$ -2 inches broad, petioles 1-2 lines long, corymbs terminal trichotomous, pedicels short crowded, bracteoles long linear, calycine segments entire lanceolate acute 3-5 times longer than the ovary, corol white, tinted with red, lobes oblongo rotundate acute much shorter than the cylindrical tube, berry ovoid or spherical crowned with the calyx. *Thw. En. Pl. Zey.* p. 155.

Ceylon, central districts up to 7000 feet.

PLATE No. XCVII.

**IXORA JUCUNDA.** (Thw.) A small tree 10-20 feet, leaves glabrous lanceolate or ovato-lanceolate acuminate attenuated at the base 4-8 inches long 1-4 inches broad, petioles 2-5 lines long, corymbs terminal pilose many flowered trichotomous at the base, primary division elongate, bracteoles small acute, calycine segments truncated shorter than the ovary, flowers white tinted with red, lobes about 2 lines long oblong acute, tube in variety  $\alpha$  &  $\beta$  7-14 lines long, in variety  $\gamma$ . 2-3 lines long ; berry subspherical, blackish-red. *Thw. En. Pl. Zey.* p. 155.

Variety  $\beta$ , leaves narrow lanceolate, calycine segments sub-acute, narrower than the lobes of the corol.

Variety  $\gamma$ , corol tube very short.

Ceylon up to 4,000 feet.

PLATE No. XCVIII.

**PAVETTA ANGUSTIFOLIA.** (Thw.) A small shrub, leaves glabrous (young ones pilose of the veins beneath) linear lanceolate, acuminate at both ends, 3-7 inches long,  $\frac{1}{2}$ -1 inch broad, petiole 1-5 lines long, stipules membranaceous apiculate hispid on the outside glabrous within, corymbs short trichotomous at the base pilose, pedicels longish, calycine teeth acute recurved at the apex shorter than the tube, corol white tube 7-10 lines long internally pilose, lobes acute 5 lines long, style very long, berry as large as a pea. *Thw. En. Pl. Zey.* p. 156.

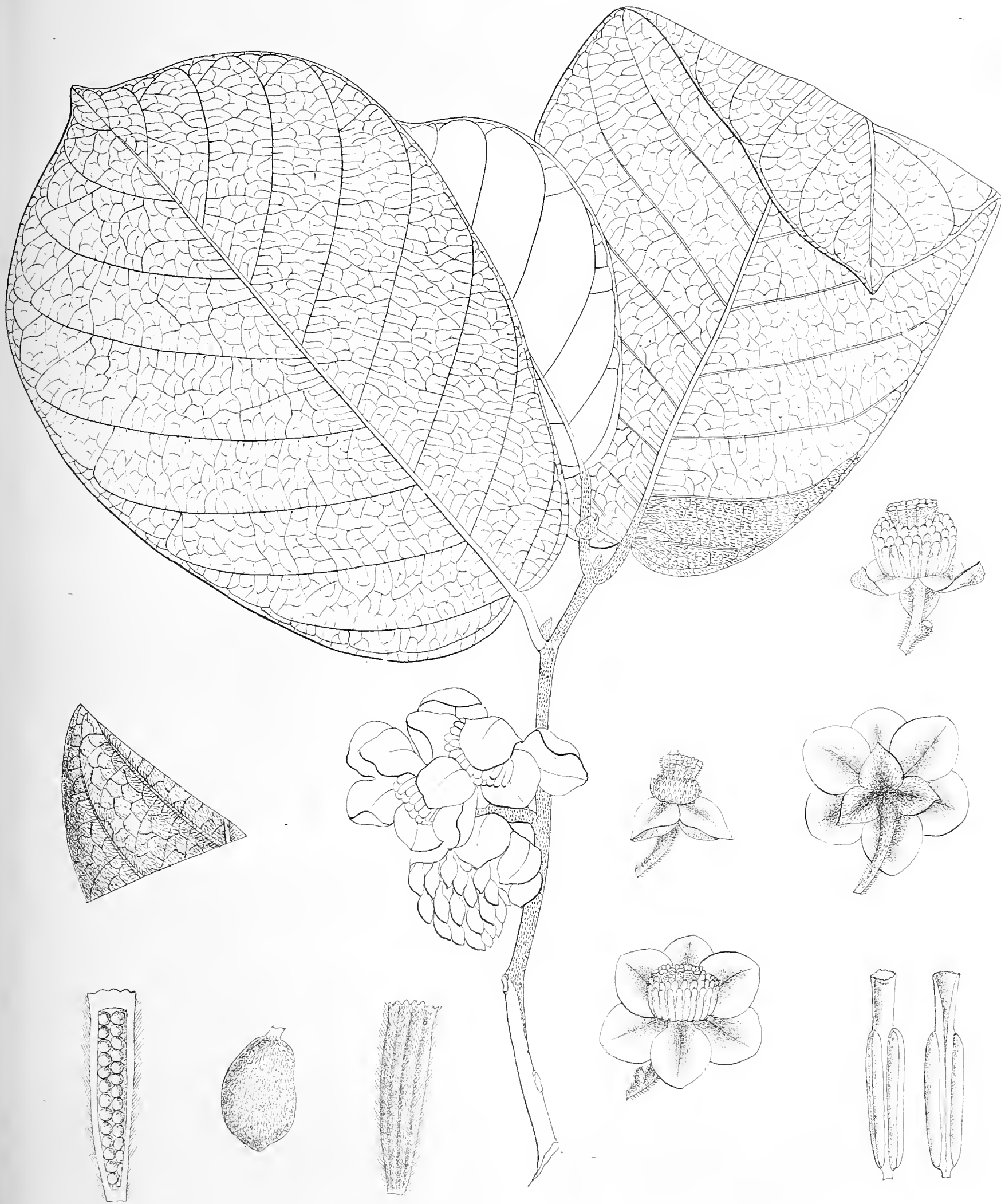
Ceylon. Central districts, banks of streams (specimen figured). I have the same or a closely allied species from Tinnevely and Coorg.

PLATE No. XCIX.

**PAVETTA INVOLUCRATA.** (Thw.) Shrub 10-12 feet turning black in drying, leaves glabrous obovate or obovato-lanceolate, shortly acuminate, rounded or acute at the base 2 $\frac{1}{2}$ -5 inches long, 1-2 inches broad, petioles  $\frac{1}{4}$  to  $\frac{1}{2}$  inch long, capituli axillary solitary, pedunculate, involucre, peduncles shorter than the leaves, involucre leafy, divisions imbricate membranaceous internally pilose, lobes of the calyx acute internally pilose shorter than the corol, corol white lobes acute equalling the short tube, style twice as long as the corol, berry spherical black, the size of a pea. *Thw. En. Pl. Zeyl.* p. 156.

Ceylon. Central districts 5,000—7,000 feet.

PLATE No. C.

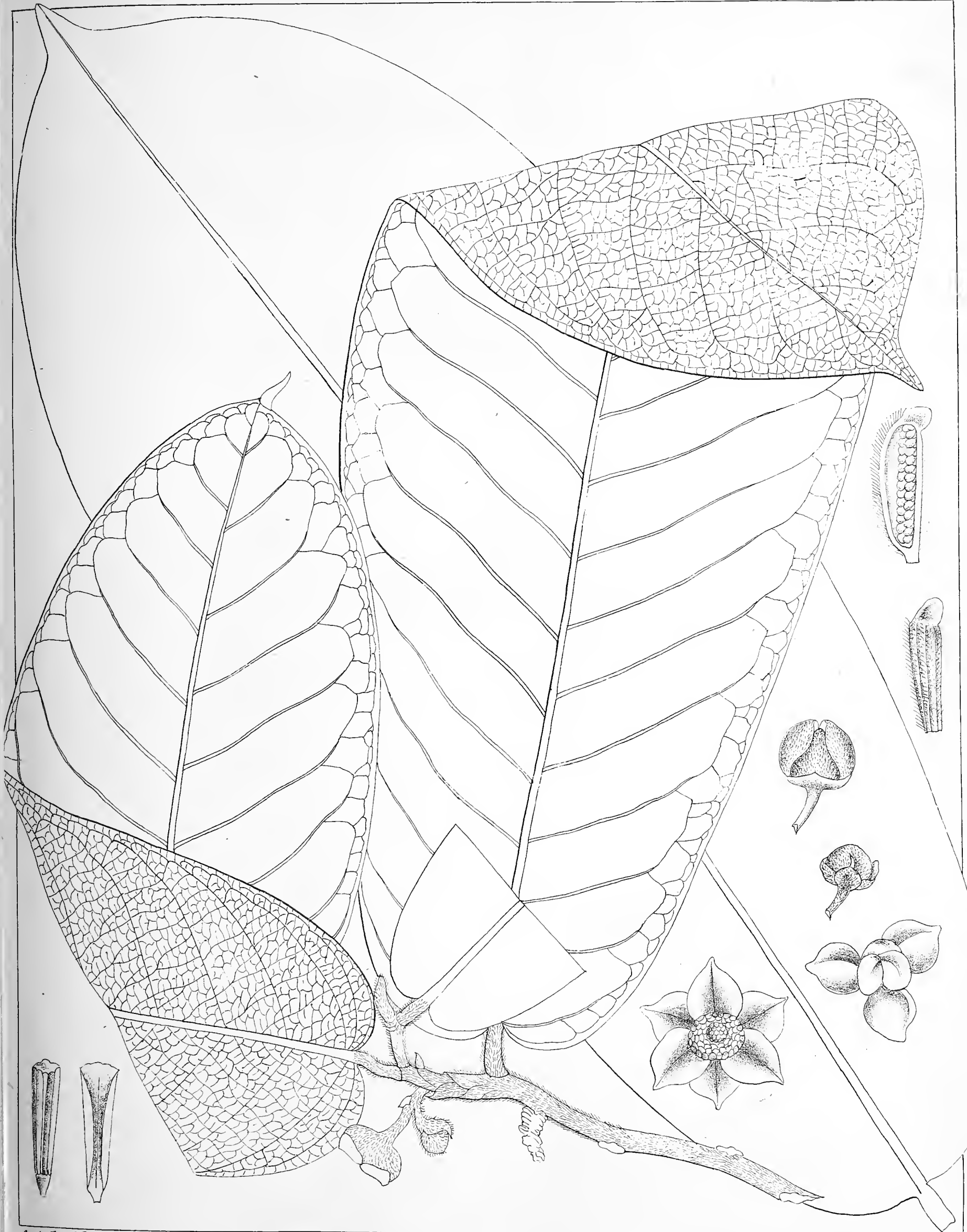


Gorindoo, del.

*Uvaria macrophylla* (Roxb.)

Dumphy, Lith.





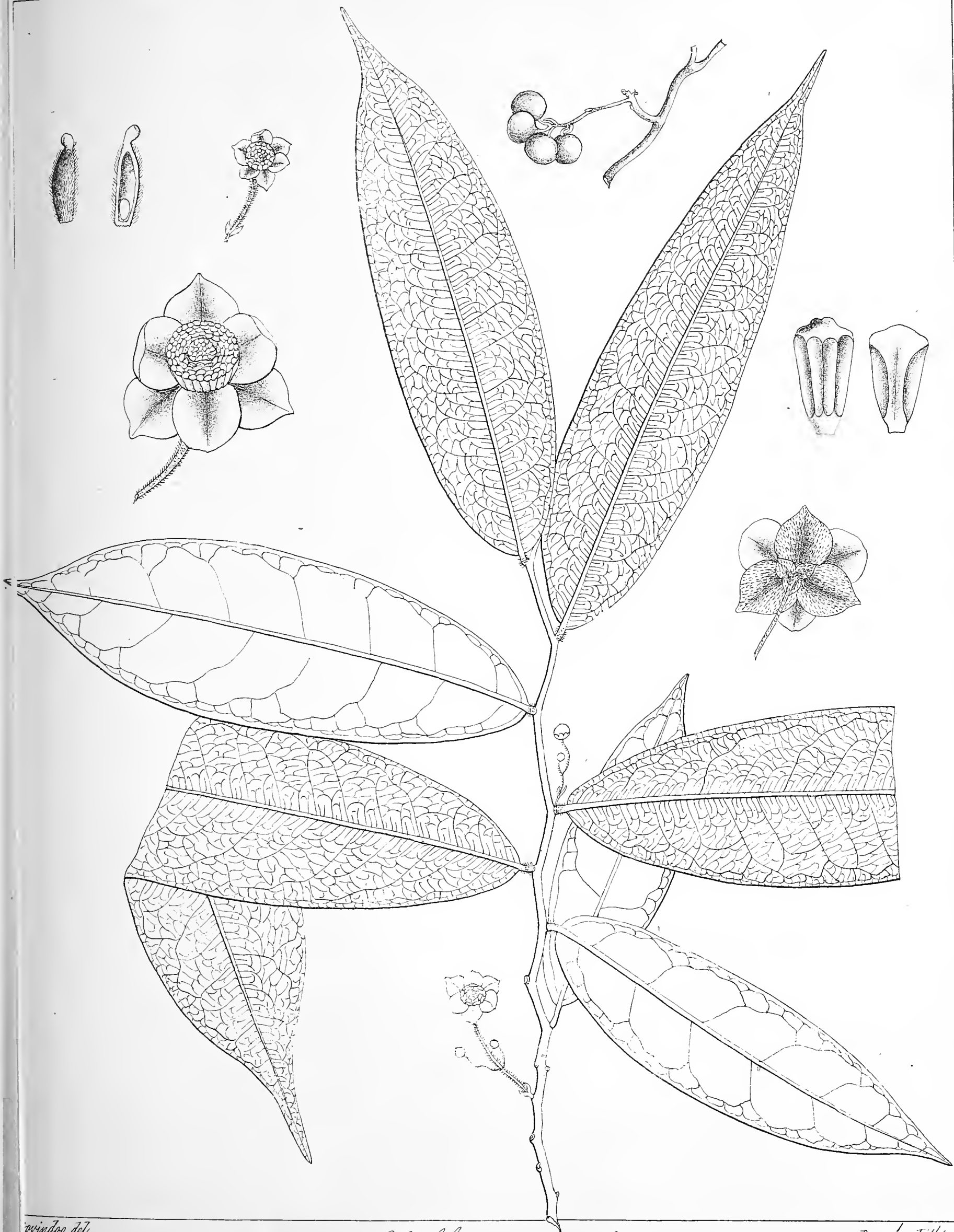
Govindoo, del.

*Uraria semicarpifolia* (Hook. fil. et Thoms.)

Dunphy, lith.







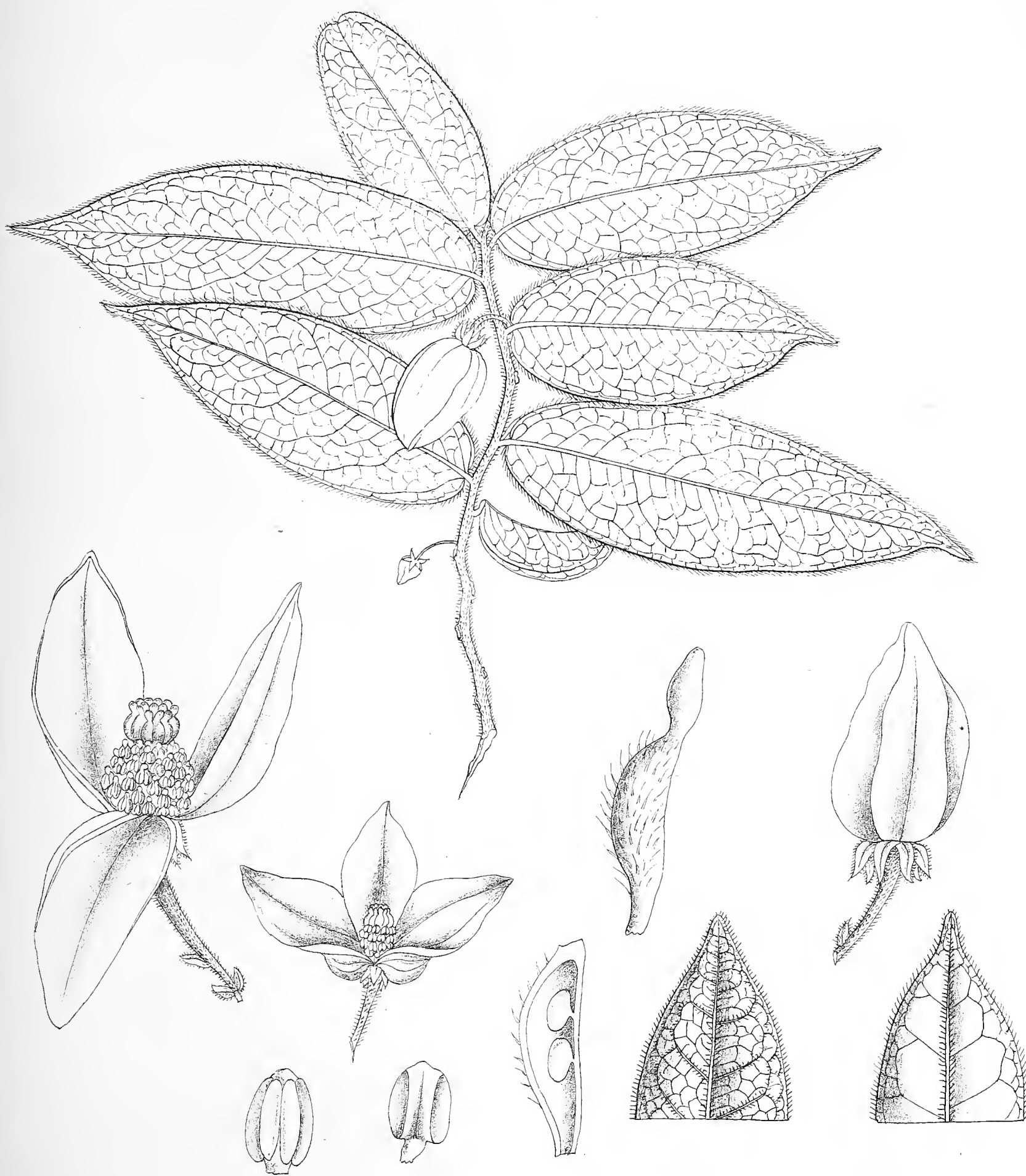
Windsor, del.

*Polyalthia Moonii* (Thw.)

Dumphy, Lplh.















Govindoo, del.

*Milivsa Wighlana* (Apok'fil et Thom.)

Dunphy, Lith.





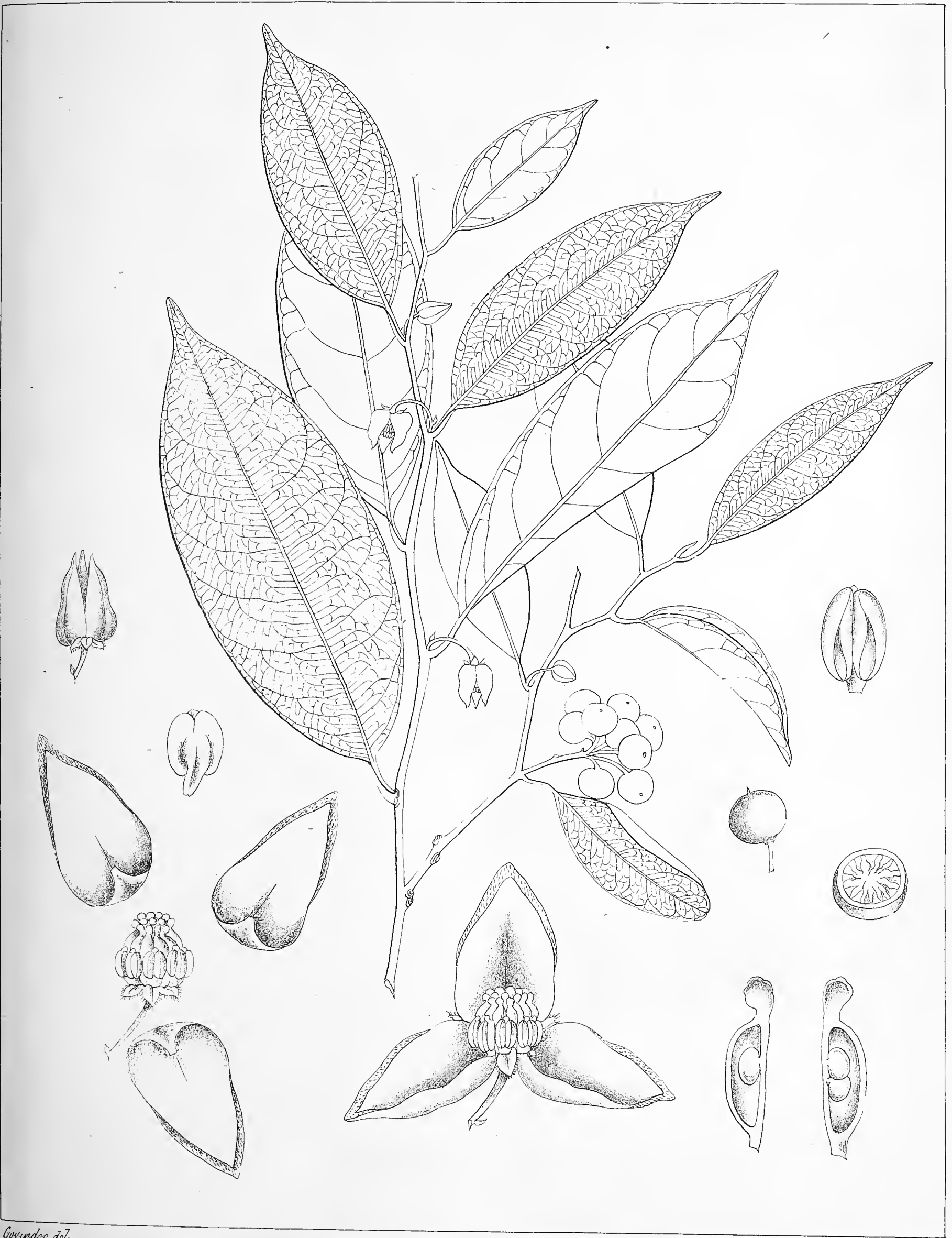
Govindoo, del.

*Milivsa velutina* (Dunal.)

Dunphy, lith.







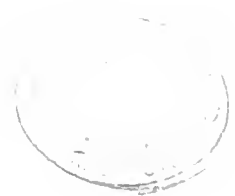
Govindoo, del.

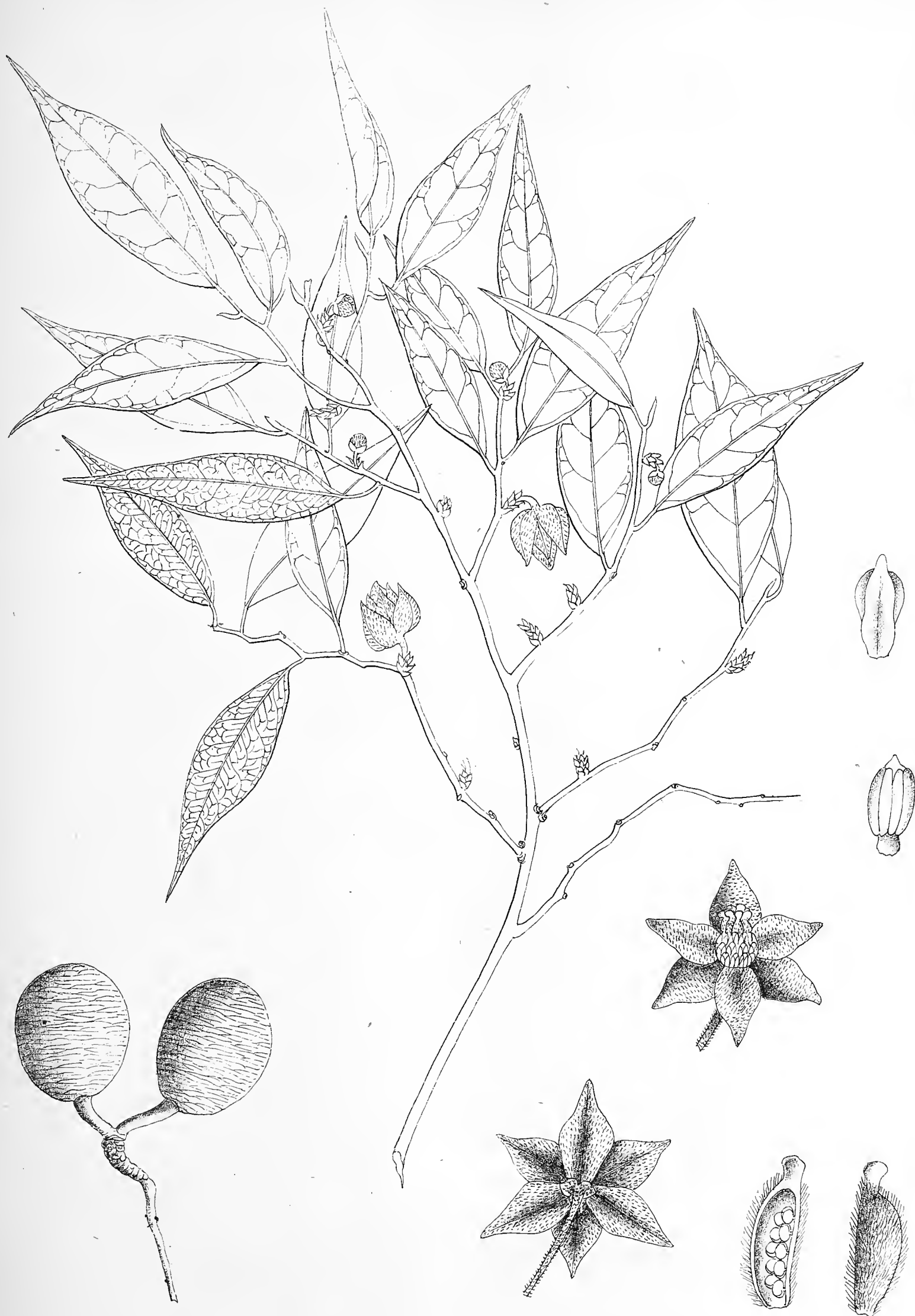
*Millettia Nilagirica* (Bedd.)

Dumphy, Lith.

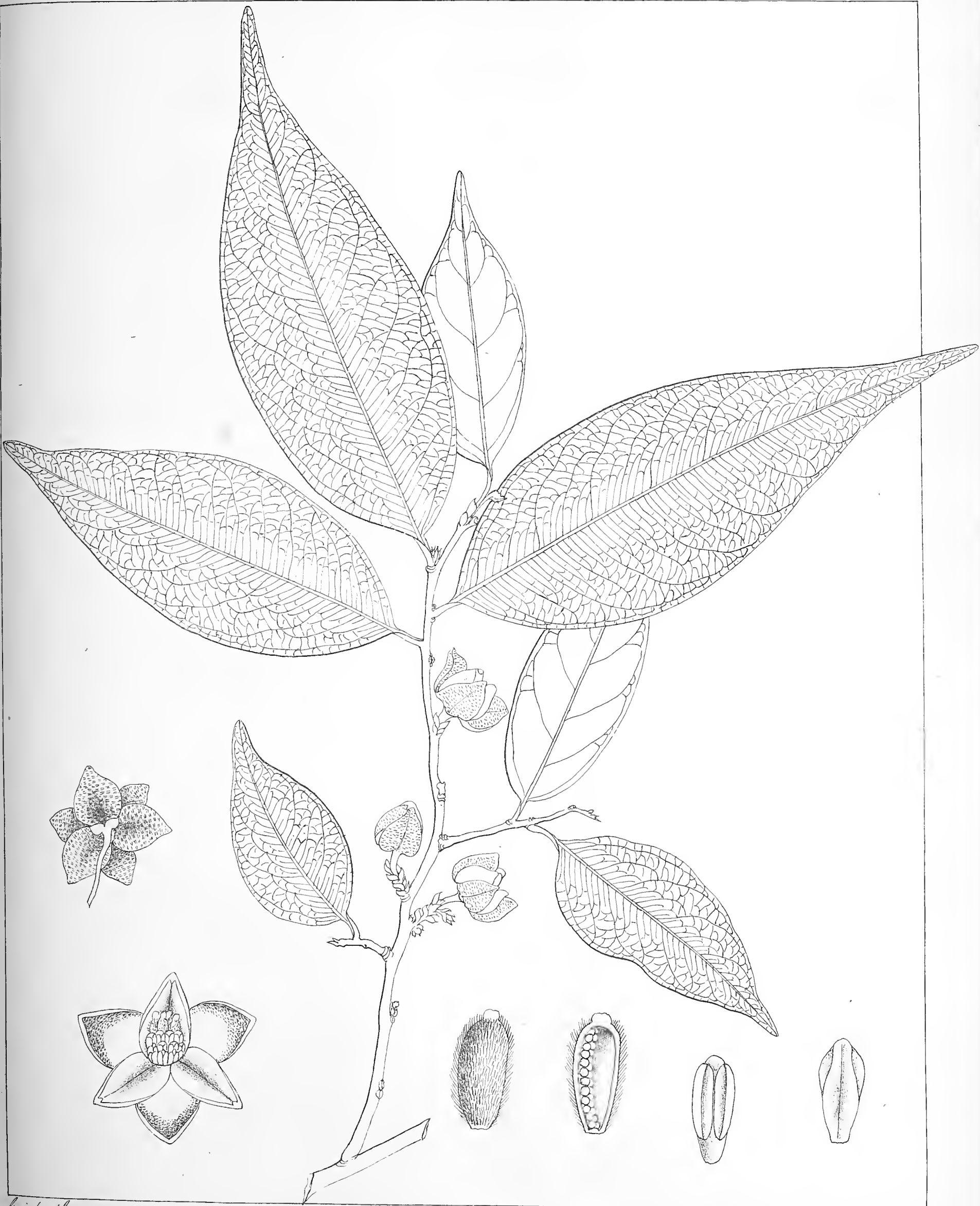










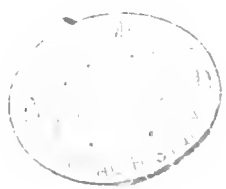


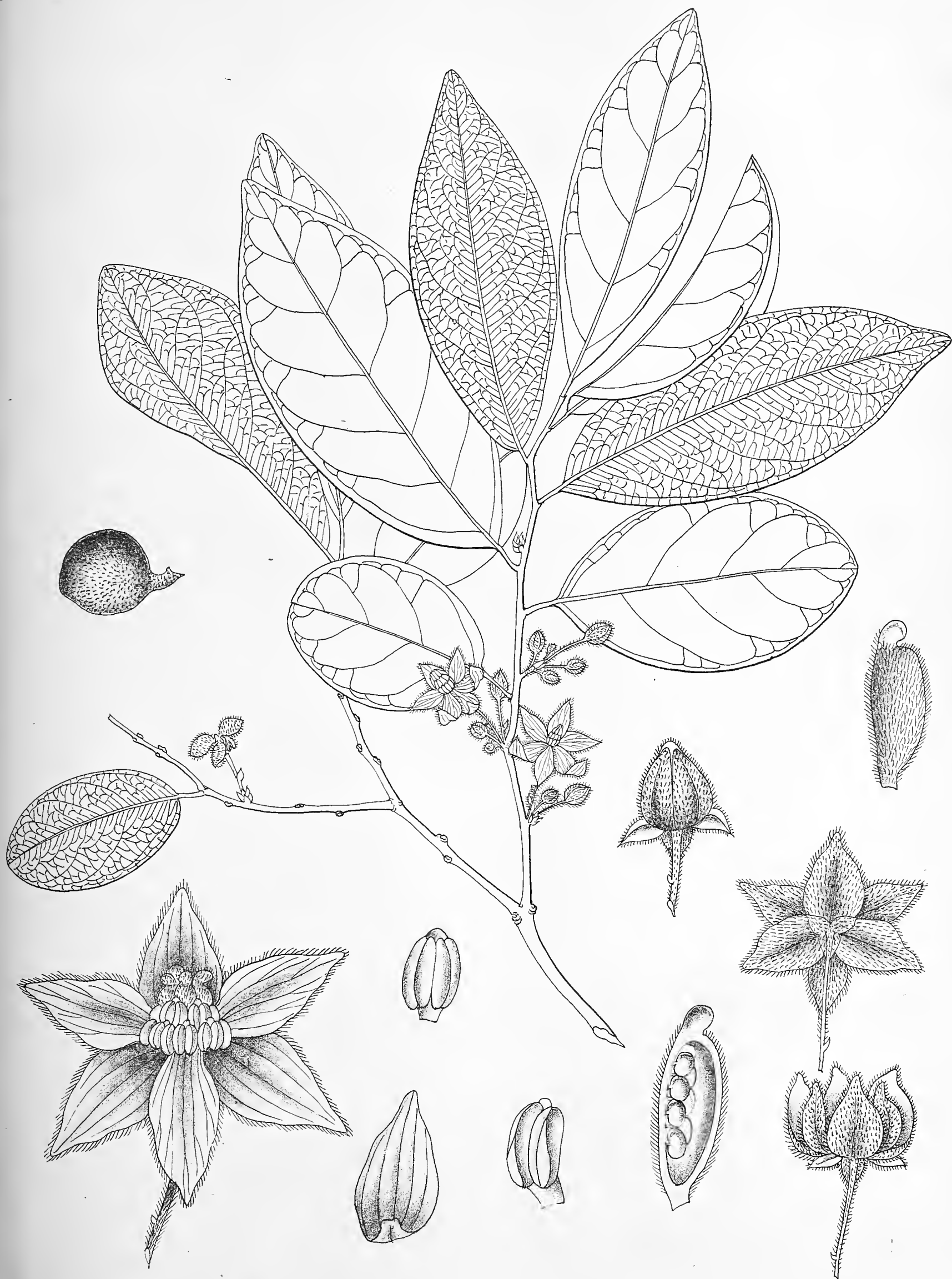
Griseb., del.

*Alphonsea lutea* (Hook. fil. et Thoms.)

Dumphy, lith.







Govindoo, del.

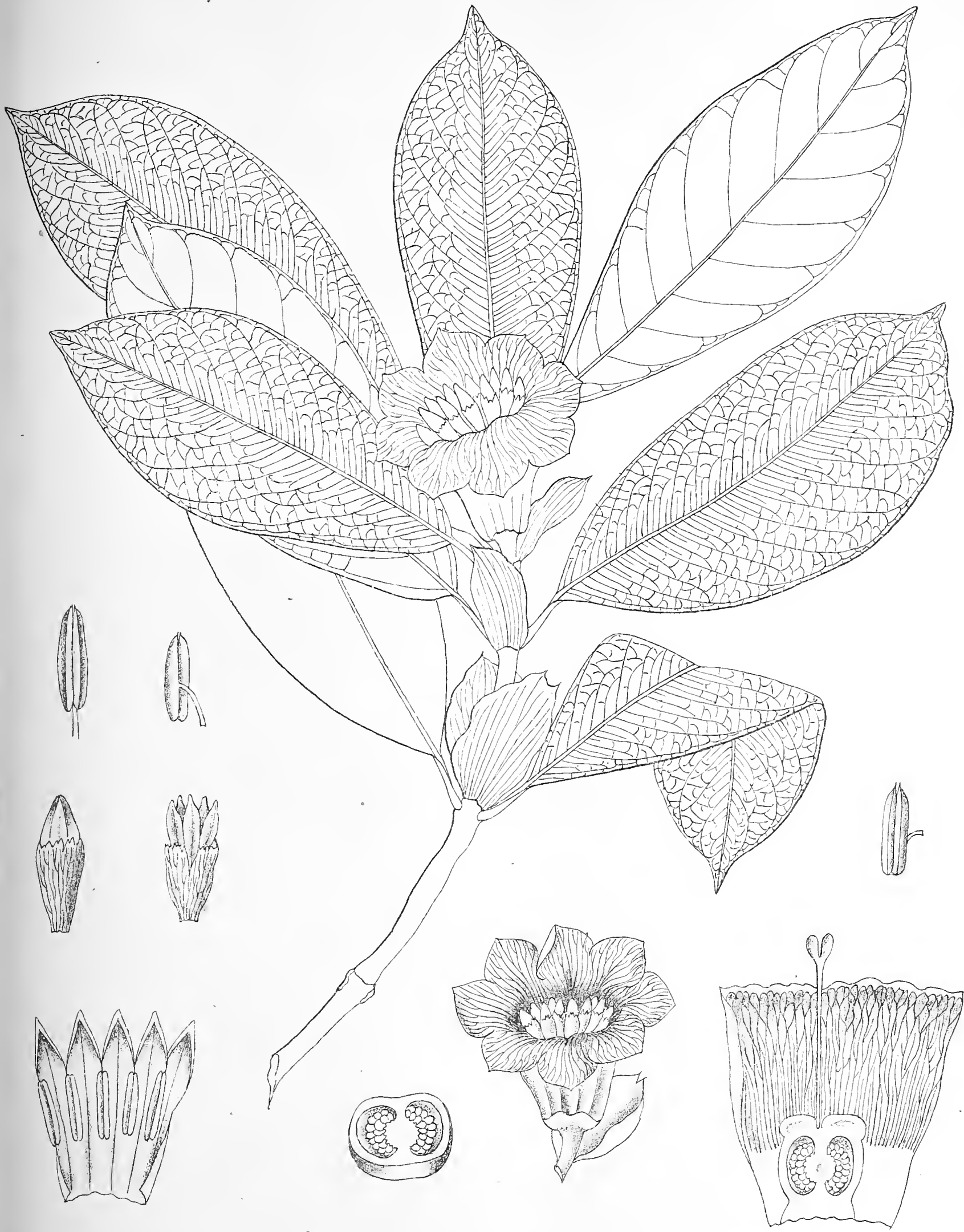
*Aphonsea Madrasapatana* (Bedd.)

Dumphy, Lith







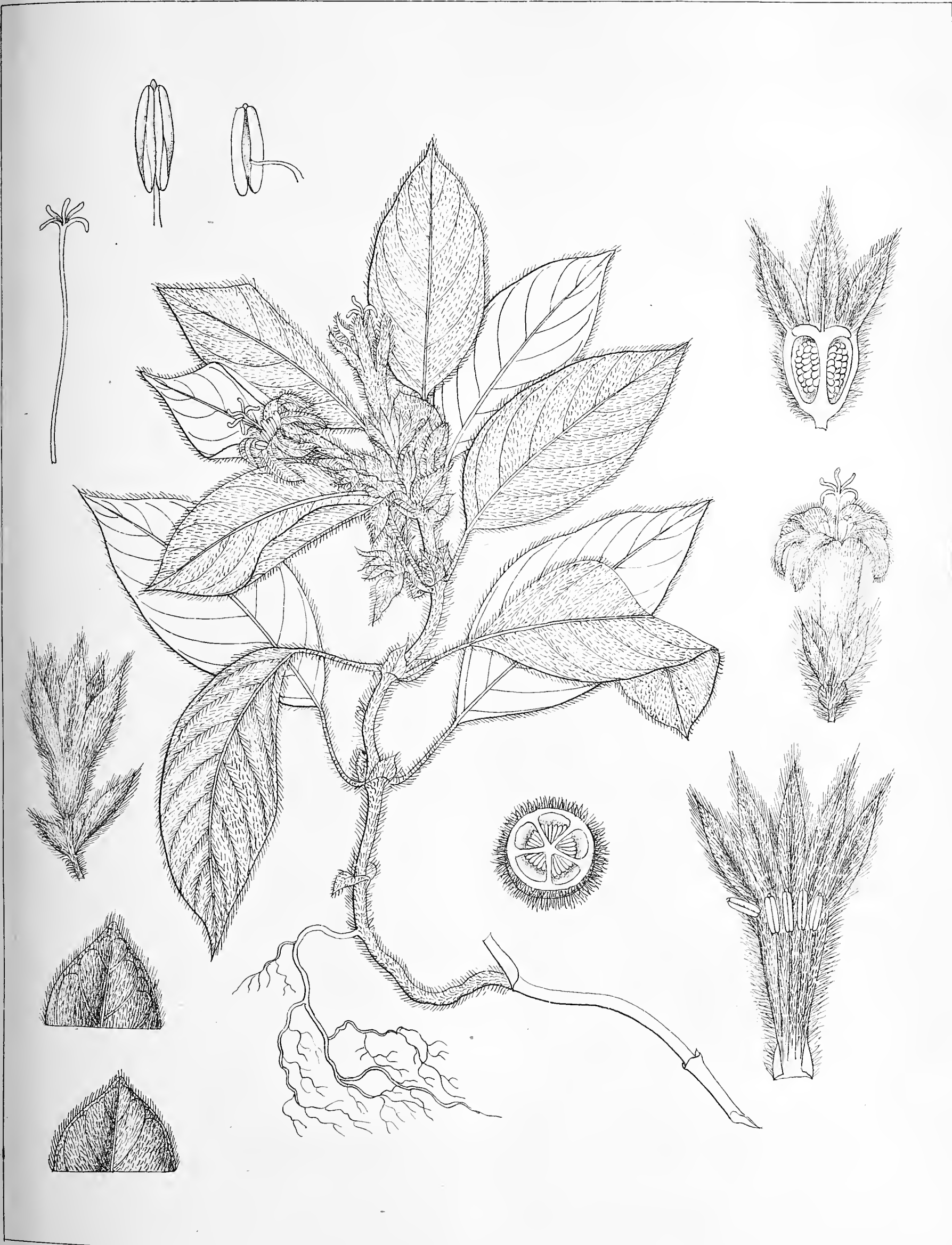


Guindoo, p. 1.

*Leucocodon reticulatum* (Gardn.)

Dunphy, T. 1.





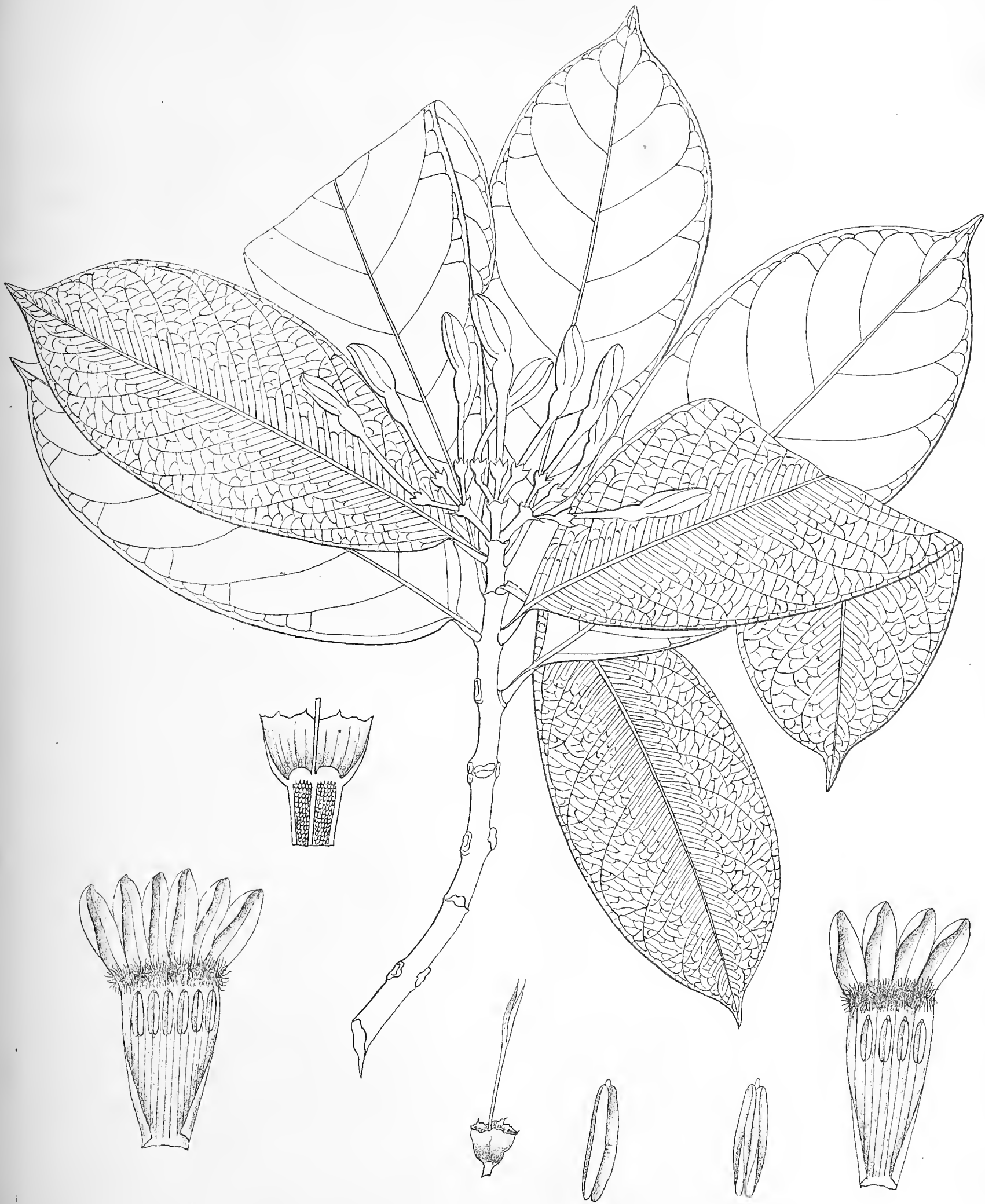
Grindos, del.

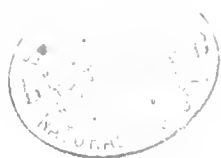
*Schizostigma hirsutum* (Ant.)

Dunphy, Lith.



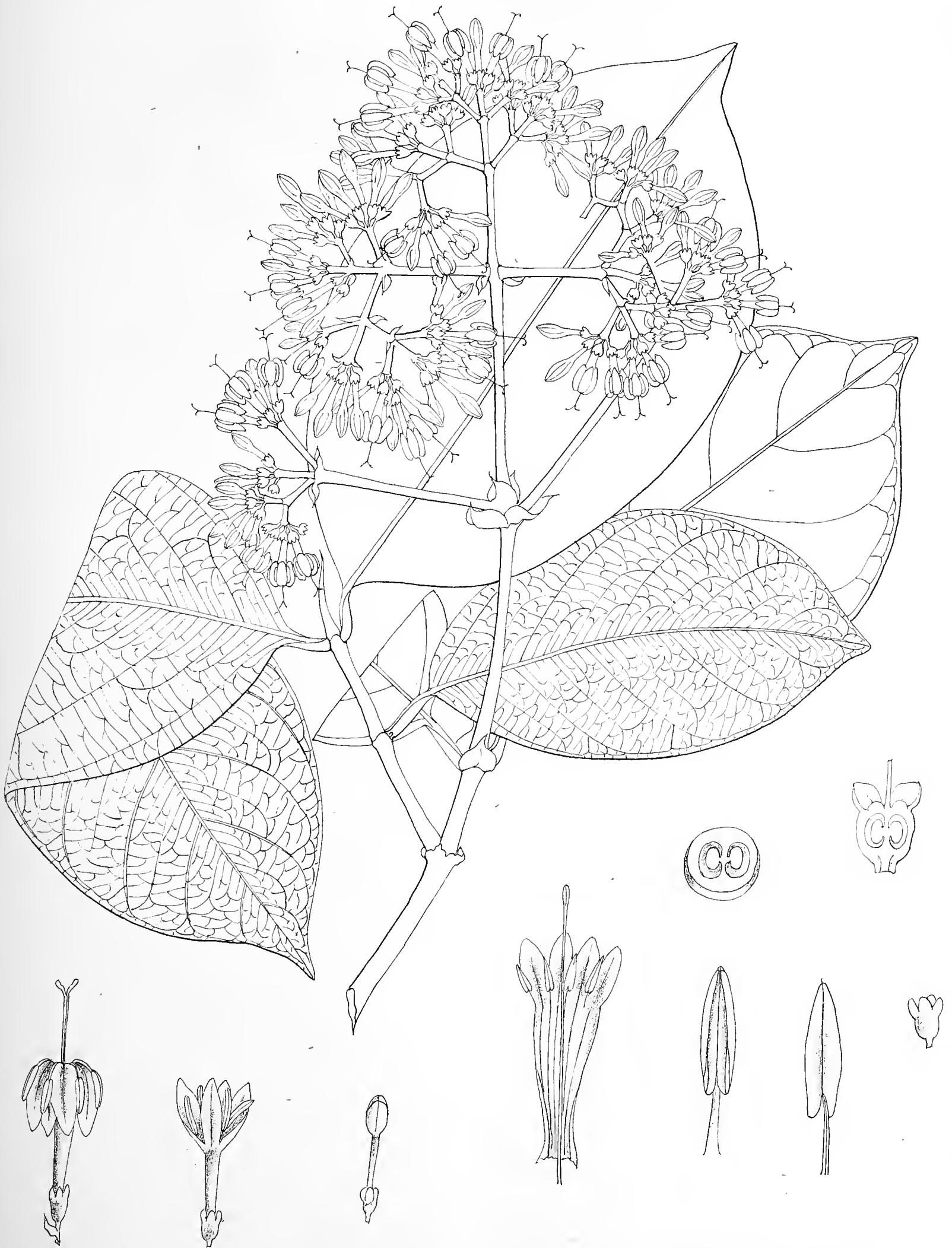












Govindoo, del.

*Isora jucunda* (Thw.) var.  $\gamma$ . *breviflora*.

Dumphy, Lith.





Isidoro, del.

*Carex angustifolia* (Thunb.)

Dampier, lith.









## ANONACEÆ.

**MITREPHORA GRANDIFLORA.** (Bedd.) A large tree, young parts minutely aureo-pubescent, leaves ovate lanceolate, or elliptic with a short blunt acumination, thinly coriaceous glabrous and shining above, glabrescent beneath, with hairy glands in the axils of the veins, 4-5 inches long by  $1\frac{1}{2}$  to  $2\frac{1}{2}$  broad, petioles about  $\frac{1}{2}$  an inch long, peduncles leaf opposed furnished with a bract below each flower 2-3 flowered shorter than the petioles, flowers subsessile, bud globose densely aureo-pubescent, exterior petals 1 to  $1\frac{1}{4}$  inches long, by  $\frac{5}{8}$  to  $\frac{7}{8}$  of an inch broad densely adpressedly velutinous on the outside, subglabrous within, pure white turning to yellow, interior petals  $\frac{4}{5}$  to  $\frac{5}{8}$  of an inch long triangular at the apex with a long broad claw, very hairy at the apex, glabrous below, white beautifully streaked with carmine, forming a mitreform cap over the genitalia, early deciduous, stamens and ovaries indefinite as in the genus, ovules 4-6 in 2 series, young carpels densely velvety, mature about the size of a hazel nut globose and 1 seeded, or oblong and 2 seeded fuscous with dense short tomentum, and furnished with a raised furrow down the whole length.

This very handsome tree was lately discovered on the S. Canara ghats near Coloor and Gairsoppah at an elevation of about 2000 feet, when in full flower it is a very handsome object and its large flowers give it at the distance more the appearance of a Magnoliaceous than an Anonaceous tree, the 3 inner petals or mitreform cap which are beautifully streaked with carmine are early deciduous, but the 3 outer petals subsequently increase in size and turn from pure white to yellow; the timber is very tough.

## PLATE No. CI.

## CELASTRACEÆ.

**GLYPTOPETALUM GRANDIFLORUM.** (Bedd.) A large shrub, leaves opposite or rarely alternate, glabrous and shining elliptic to oblong with a short rather sudden acumination 3 to 7 inches long by  $1-3\frac{1}{2}$  broad, quite entire or distantly and obscurely toothed in the upper portion, petioles 2-3 lines long, cymes supra-axillary as long or rather longer than the leaves three flowered at the apex, pedicels divaricate  $1-1\frac{1}{2}$  inches long, flowers bright yellow about 1 inch across, tetramerous, sepals imbricate, petals oblong patent slightly reflexed not foveolate, stamens 4 inserted on to the disk, ovary immersed in the disk 4 celled, ovules solitary pendulous from the apex of the axis.

In the Wynad in moist woods at Devala, elevation 2,000-2,800 feet.

## PLATE No. CII.

## SAPINDACEÆ.

**NEPHELIUM STIPULACEUM.** (Bedd.) A middling sized tree, leaves glabrous abruptly pinnate 6-14 inches long leaflets 2-3 pair opposite or subopposite, the lowest pair quite at the base of the common petiole very small obliquely curved and stipuliform, others oblong obtusely acuminate slightly attenuated and oblique at the base glabrous on both sides pale beneath 3-6 inches long by 2-3 broad, panicles axillary and terminal slightly pilose, a little shorter than the leaves, flowers polygamo-dioecious apetalous, stamens 5-9 slightly exserted, ovary 2 lobed 2 celled, style 2 parted, lobes recurved, fruit oval the size of a large gooseberry densely covered with weak prickles, seed oblong half covered with the succulent aril, testa brown, cotyledons very large fleshy. *Bedd. in Linn. Trans. Vol. XXV.*

Anamallays and Wynad in moist woods at an elevation of about 2,000 feet.

## PLATE No. CIII.

## MELIACEÆ.

**LANSIUM ANAMALLAYANUM.** (Bedd.) A good sized tree, leaves 6-9 inches long unequally pinnate glabrous, leaflets 3-5 elliptic obtusely acuminate attenuated at the base entire,  $3-4\frac{1}{2}$  inches long by  $1\frac{1}{2}-2$  broad furnished with hairy glands in the axils of the veins beneath, petioles about  $\frac{1}{2}$  an inch long, flowers in axillary paniced spikes, peduncle very short 1-2 lines long, spiked pedicels 2-3 inches long, flowers pentamerous hermaphrodite sepals imbricate rounded ciliate with 1-2 minute bracts at the base, petals about twice as large imbricate, rounded at the apex, stamen-tube obsoletely 5 cleft, anthers 10 alternately shorter, the 5 longer ones just appearing above the apex of the tube filaments quite coherent with the tube and not separable with the anther, ovary strigose sessile 3 lobed 3 celled, cells 2 ovuled, style very short thick, stigma obtusely 3 lobed, fruit oblong very succulent size of a large grape 2 celled 2 seeded, seed arillate, embryo peritropal radicle pubescent. *Bedd. in Linn. Trans. Vol. XXV.*

Common in the moist woods on the Anamallays and in the Wynad at an elevation of about 2,000 feet.

## PLATE No. CIV.

## LEGUMINOSÆ.

**CROTALARIA LANATA.** (Bedd.) A large shrub 12-15 feet high, stems angled very woolly above, leaves oblong oval or suborbicular mucronate 4-6 inches long by 3-3½ broad, glabrous above densely woolly beneath, petioles ½-1 inch long woolly, stipules very large transversely lunate apiculate, racemes terminal bracts hairy ovate apiculate calyx pubescent, flowers large yellow, legume glabrous many seeded.

Anamallays and Pulnies, grass land and dry forest, 3-4,000 feet elevation.

## PLATE No. CV.

**CROTALARIA ELEGANS.** (Bedd.) Herbaceous erect glabrous, leaves narrow linear 4-6 inches long by 2-3 lines broad, mucronate, petioles 1 line long slightly hairy (under the lens) as is the costa on the under side of the leaves, stipules minute early caducous, racemes terminal and from the upper axils slender many flowered, bracts large ovate apiculate adnate and decurrent to the rachis of the raceme, flower pedicels about ½ an inch long increasing to one inch when in fruit, legume sparingly hairy (under the lens) many seeded.

Anamallays and Pulnies, grassy places about 4,000 feet elevation; a very pretty species.

## PLATE No. CVI.

**BAUHINIA BENTHAMII.** (Bedd.) A gigantic climber, the young branches inflorescence and legumes fuscous with minute reddish tomentum otherwise glabrous leaves broadly oblong to suborbicular 7-9 nerved 3-5 inches long and nearly as broad divided down ½th-⅓rd into 2 obtuse lobes, above glabrous, beneath minutely hairy (under the lens) racemes leaf opposed supra-axillary or terminal, few flowered, flowers pedicellate bright crimson about 2½ inches each way, calyx with a long tube below and 5 imbricate closed segments above, 5 angled in bud at length splitting in the upper portion into 5 equal narrow lanceolate segments or into 2 divisions of 2-3 each, petals 5 very long clawed, nearly twice the length of the calyx segments, stamens 5 free all fertile and of equal length inserted into the hairy apex of the calyx tube, anthers versatile, ovary stalked about 5 ovuled, stalk below adhering to the inside of the calyx tube, legume about 6 inches long and 1½ broad obliquely lanceolate with a long fine point, seminiferous suture flat and slightly winged about 5 seeded.

A most gorgeous creeper, very common about the Wynad and South Canara ghats, from the foot up to about 1,500 or 2,000 feet elevation; it climbs to the top of the highest trees.

## PLATE No. CVII.

**HUMBOLDTIA UNIJUGA.** (Bedd.) A tree, young parts minutely strigose otherwise glabrous, leaves alternate abruptly pinnate, common petioles about 2 lines long, leaflets only one pair with a flat depressed gland at their insertion on the apex of the petioles, subsessile narrow lanceolate very unequal at the base, and with a long acumination at the apex 5-7 inches long 1¼ to 2 broad stipules semi-ovate acuminate very unequal sided ½ to ¾ inch long, flowers crimson on very short racemes from the trunk and older boughs and more rarely from the younger branchlets, peduncles ½-1 inch long pedicels slender ½ to 1 inch long furnished with 2 oblong minutely pubescent bracts at the apex just below the calyx, calyx with a short tube 5 parted, segments oblong more than twice as long as the bractes minutely pubescent, corol 5 parted, one half longer than the calyx lobes, broad oblong, stamens 5 all fertile inserted alternate with the petals on to the hairy apex of the calyx tube, filaments glabrous except at their base, staminodia none, ovary stipitate hairy 2-3 ovuled, stipe adnate to the wall of the calyx tube, legume unknown.

A tolerably large tree, abundant on the Travancore hills just below Aghusteer peak, at 3-4,000 feet elevation.

## PLATE No. CVIII.

## ROSACEÆ.

**PARINARIUM INDICUM.** (Bedd.) A middling sized tree, glabrous except the inflorescence, leaves alternate elliptic to lanceolate entire glabrous slightly undulate, 8-9 inches long by 3 broad, with 2 glands at the base on the under side close above the petiole ¼ to ½ inch long, racemes slightly pubescent, shorter than the leaves leaf opposed or terminal, flowers white subsessile 3 bracteate, outer bract large ovato-lanceolate, 2 inner ones linear lanceolate, calyx tube infundibuliform, divisions 5 imbricate lanceolate acuminate subequal pilose, petals 5 inserted into the jaws of the calyx between its divisions and the stamen tube and alternate with the former ovate pointed imbricate equal, a little shorter than the calycine lobes, stamen tube lining the inside of the calyx and connate with it to its base densely hairy inside, stamens 12-15 all together on one side of the tube near the ovary, filaments glabrous twice the length of the calyx induplicate in aestivation, anthers 2 celled bursting longitudinally, the rest of the stamen tube is furnished with teeth

along its margin (staminodia ?) ovary connate with the tube near the summit very hairy 2 celled, cells 1 ovuled, ovule erect, style lateral or almost basal glabrous except at the base longer than the stamens. *Entosiphon Indicus*, *Bedd. in Mad. L. Soc. Jour.*

Wynad, in moist woods at an elevation of 2,000-3,000 feet, common on the Carcoor ghat.

PLATE No. CIX.

BEGONIACEÆ.

**BEGONIA MINIMA.** (Bedd.) A very small plant about 4 inches high, leaves radical rhomboid ovate to cordate or slightly trilobate acuminate, bristly crenate, long petioled, furnished above with a few weak hairs, beneath glabrous, pellucid dotted,  $1\frac{1}{2}$  to 2 inches long,  $1-1\frac{3}{4}$  broad, petioles 1-2 inches long, scapes dichotomously branched longer than the leaves, with 1 leaf near the base, branches several flowered, bracteate, male perianth 4 petaled, 2 inner petals narrower than the outer, stamens definite about 8, female perianth 5 petaled, capsule 3 winged, placentas double.

Wynad, on rocks in moist woods near Devalicottah, elevation 2,500-3,000 feet ; it belongs to Dr. Lindley's section *Diploclinium*.

PLATE No. CX.

**BEGONIA FLOCCIFERA.** (Bedd.) Stemless with large scariose very membranaceous bracts at the apex of the root leaves densely covered with woolly tomentum on both sides when young, at length nearly glabrous above, obliquely semi-cordate to sub-orbicular (not peltate) variously sinuate but not lobed, generally broader than long, 3 inches long by 4 broad, but very variable in size and shape, petioles about 2-2 $\frac{1}{2}$  inches long very woolly, scapes very long branched, with the branches again dichotomously branched and supradecomposed, flowers very numerous, male perianth 2 petaled, petals nearly orbicular, stamens indefinite, female perianth 4 petaled, petals lanceolate acute, placentas single.

Travancore and South Tinnevely hills, at an elevation of 3,000 feet.

PLATE No. CXI.

**CYPRIPEDIUM DRURII.** (Bedd.) Rhizome shortly creeping with thick succulent fibres, leaves radical narrow oblong thick coriaceous slightly unequal at the apex, 8-12 inches long by about  $1\frac{1}{2}$  broad, scape 7-10 inches long pubescent, bearing a single large yellowish flower streaked and blotched with reddish purple, with a sheathing bract at the base, upper sepals  $1\frac{1}{2}$  or a little more long and about 1 inch broad acuminate pubescent on the outside, lower ones united in a single broadly ovate sepal, petals narrow oblong nearly 2 inches long by about  $\frac{1}{2}$  an inch broad slightly hairy at the base, labellum broadly inflated about  $1\frac{1}{2}$  inch long.

Travancore hills at 5,000-6,000 feet elevation, first discovered by Colonel H. Drury on the Aghusteer hill, and I afterwards found it very abundant on the top of the Calcad hills, in flower in January.

PLATE No. CXII.

MYRSINACEÆ.

**ARDISIA SERRATIFOLIA.** (Bedd.) An erect shrub, young branches under side of the leaves and petioles densely rufo-tomentose, leaves nearly glabrous above, narrow lanceolate attenuated at the base and with a long acumination at the apex, very sharply serrated serratures quite at right angles with the margin of the leaf, lateral veins numerous diverging from the midrib very prominent beneath, 6-9 inches long by  $1\frac{1}{4}$ -2 $\frac{1}{2}$  broad, petioles  $\frac{1}{4}$  to  $\frac{1}{2}$  inch long, peduncles axillary about 2 lines long several flowered, pedicels slender about  $\frac{1}{2}$  inch long glabrous, calyx pubescent, petals gland dotted, style long slender.

Anamallays, in moist woods up to 3,000 feet, Coimbatore hills at similar elevations.

PLATE No. CXIII.

RHAMNACEÆ.

**ZIZYPHUS WYNADENSIS.** (Bedd.) A lofty tree, unarmed, young shoots and inflorescence fulvo-tomentose, leaves elliptic lanceolate glabrous and shining above beneath very finely reticulated and slightly hairy on the veins furnished with hairy glands in the axils of the main veins,  $1\frac{1}{2}$  to nearly 2 inches long,  $\frac{3}{4}$  to  $\frac{7}{8}$  of an inch broad, petioles a little less than  $\frac{1}{4}$  inch long, flowers in dense axillary fascicles about the length of the petioles, sepals furnished with a prominent ridge down their inner face, petals 3 lobed, connective of the anthers prolonged into a long blunt point, ovary 2 celled immersed in the hairy pentagonal disk, styles 2 diverging.

Wynad, in dense forests about Devalicottah, elevation 3,000 feet.

PLATE No. CXIV.

## STYRACEÆ.

**SYMPLOCOS ROSEA.** (Bedd.) A large shrub, with small rose colored flowers, young branches petioles and inflorescence hairy, leaves elliptic oblong to lanceolate, slightly attenuated at the base and furnished with a longish sharp acumination, very finely but sharply serrated except at the base, glabrous above, glabrescent beneath or furnished with a few hairs on the costa and veins, 5-6 inches long by  $1\frac{1}{2}$  to  $2\frac{1}{2}$  broad, petioles about 4 lines long, racemes axillary 1-3 inches long very hairy as are the deciduous bracts and the calyx, calyx-lobes acute about  $\frac{1}{2}$  as long as the corol, corol lobes obtuse glabrous, ovary 3 celled, cells 2 ovuled, ovules pendulous, fruit oblong about  $\frac{1}{2}$  an inch long, puberulous. *Bedd. in Linn. Trans. Vol. XXV.*

Anamallays, moist woods, 2,000 to 4,000 feet elevation.

PLATE No. CXV.

**SYMPLOCOS ANAMALLAYANA.** (Bedd.) A small tree, every where glabrous, leaves ovate to sub-orbicular with a short obtuse point very coriaceous shining, serrulate in the upper half,  $1\frac{1}{2}$  to  $1\frac{3}{4}$  inches long by about 1 inch broad, petioles about 1 line long, peduncles simple axillary solitary or 2-3 together about 1 inch long furnished with 2 bractes at the base of the calyx, flowers small white, calyx lobes acute about  $\frac{1}{3}$ rd the length of the corol, corol lobes rounded, ovary 3 celled, with 2 pendulous ovules in each cell, fruit narrow oblong  $\frac{1}{2}$  to  $\frac{3}{4}$  inch long. *Symplocos uniflora, Bedd. in Linn. Trans. Vol. XXV. (not Benth.)*

Anamallays, 5,000—6,000 feet elevation.

PLATE No. CXVI.

**SYMPLOCOS ACUMINATA.** (Bedd.) A small tree or large shrub, young shoots peduncles and bracts minutely hairy otherwise quite glabrous, leaves elliptic lanceolate attenuated at the base and furnished with a very long acuminate point subentire or with a few very inconspicuous distant teeth in the upper half, about 4 inches long by  $1\frac{1}{2}$ - $1\frac{3}{4}$  broad racemes slender axillary or supra-axillary slightly hairy as are the bracts 1-2 inches long, bearing several pedicelled white flowers, calyx lobes rounded or subacute,  $\frac{1}{2}$  shorter than the corol, flowers  $\frac{1}{2}$  an inch in diameter, corol-lobes obtuse, ovary 3 celled with 2 pendulous ovules in each cell.

Wynad, very common on the top of the Brumagherries, elevation 5000 feet, also on the Tirrioot peak at a similar elevation.

PLATE No. CXVII.

## GENTIANACEÆ.

**EXACUM TRAVANCORICUM.** (Bedd.) A small much branched glabrous perennial about 6-8 inches high, stems numerous terete, leaves sessile spatulate incurved, and slightly acute at the apex very thick and fleshy, convex on the under surface 3 veined, (veins quite obscure)  $1-1\frac{1}{4}$  inches long by about  $\frac{1}{2}$  an inch broad, peduncles axillary solitary about 2 inches long each bearing a single large light blue flower, each flower being  $1-1\frac{1}{2}$  inches in diameter, calyx winged on the angles, lobes 4 with very long acute points about  $\frac{1}{2}$  as long as corol, corol lobes rounded.

Travancore hills, abundant on the Attraymallay in grassy places and on rocks at an elevation of 5000 feet; a most lovely plant. of which the drawing only shows 1 branch; it forms a dense globular plant, covered with sometimes nearly 50 beautiful cobalt colored flowers.

PLATE No. CXVIII.

**EXACUM ATROPURPUREUM.** (Bedd.) A glabrous erect plant, annual? stems terete, leaves sessile and stem clasping from broadly ovate to suborbicular with a sharpish acumination 3-5 nerved  $1\frac{1}{2}$ -2 inches long by  $1\frac{1}{2}$  broad, flowers on solitary axillary peduncles which are about the length of the leaves, calyx very much winged on the angles, lobes 5 apiculate less than  $\frac{1}{2}$  the length of the corol, flowers about 2 inches in diameter, of a very deep blue, corol lobes slightly acute, capsule oblong.

PLATE No. CXIX.

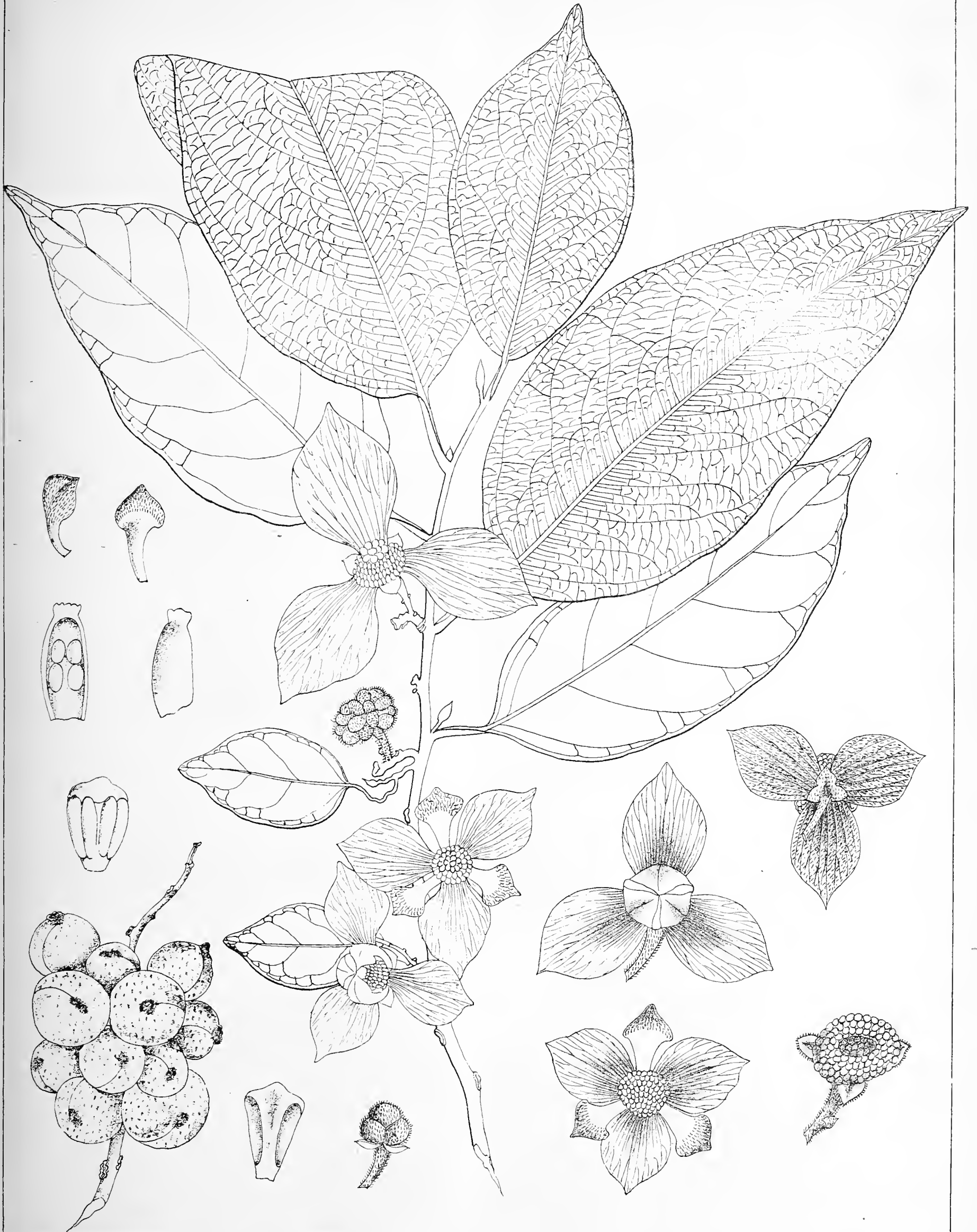
## CYRTANDRACEÆ.

**DIDYMOCARPUS REPENS.** (Bedd.) A creeping plant, everywhere covered with much silvery pubescence, stems rooting at intervals along their whole length, leaves long petioled broadly cordate or orbicular with a very cordate base and slightly pointed at the apex, coarsely crenated with the crenatures again serrated, covered on both sides with numerous silvery hairs of different lengths, the longer ones being jointed, 4-5 inches each way, petioles about 4 inches long very hairy, peduncles rather larger than the petioles, few flowered at the apex, flowers blue, calyx lobes acute about  $\frac{1}{4}$  the length of the corol, corol tube  $\frac{1}{2}$  to  $\frac{3}{4}$  inch long recurved, lobes small obtuse and scarcely spreading, filaments of the fertile stamens broadly dilated except at the apex, sterile filaments shorter slightly clavate at the apex.

In moist woods in the South Tinnevely and Travancore forests, 1,000-3,000 feet elevation, very abundant in the Ayen Coil pass, nearly allied to *D. Zeylanica* R. Br. a Ceylon plant.

PLATE No. CXX.





Govindoo, del.

*Mitrephora grandiflora* (Bedd.)

Dumphy, lith.







Govindoo, del.

*Glyptopetalum grandiflorum* (Bedd.)

Dumphy, lith.





G. Lindero, del.

*Nephelium stipulaceum* (Bedd.)

Dumphy, Lith.





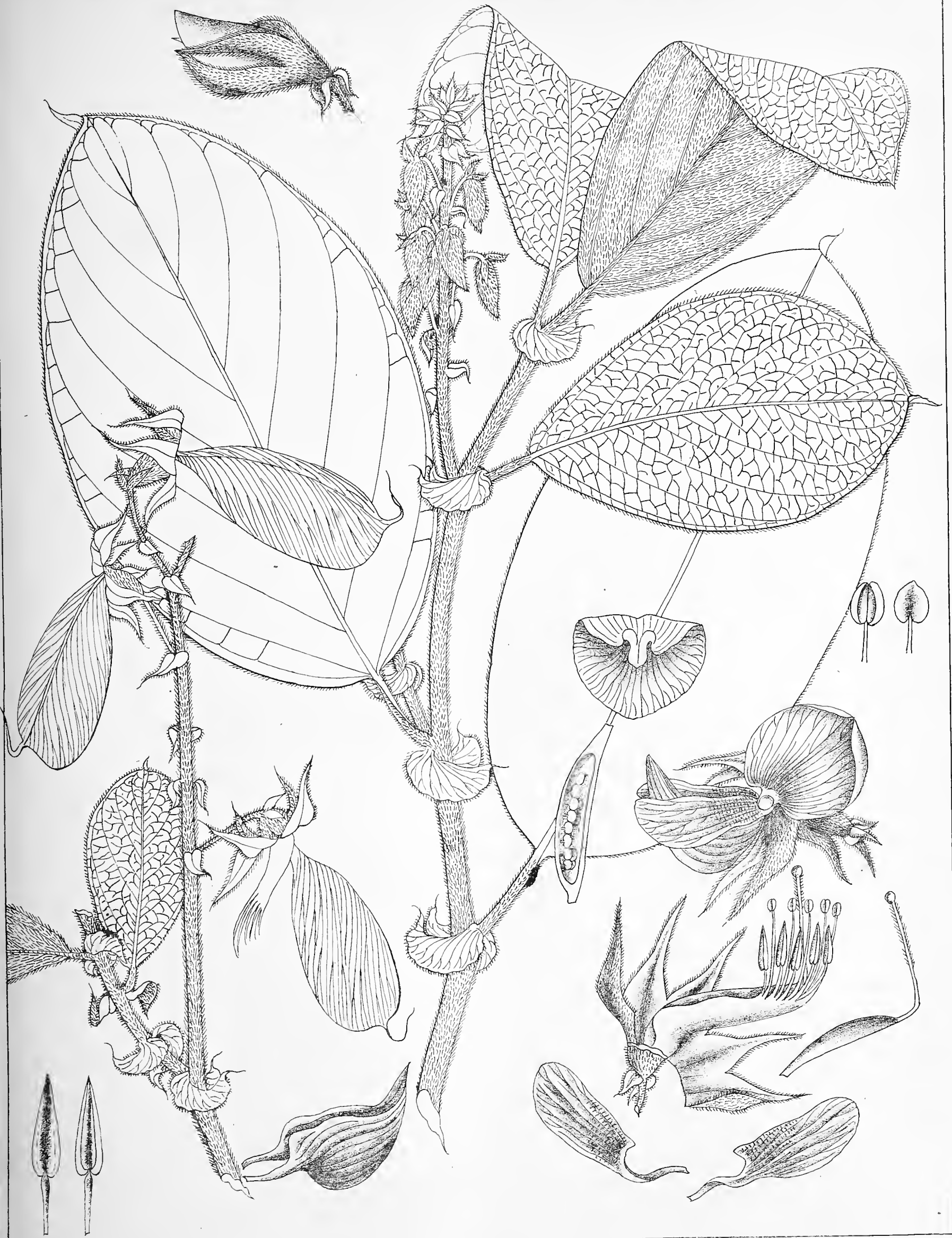
Govindoo, del.

*Lansium Anamallayanum* (Kedd.)

Dumphy, Lith.







Govindas, del.

*Crotalaria lanata* (Bedd.)

Dumphy, lith.







Govindoo, del.

*Brotalaria elegans* (Bodd.)

Dumphy, Lith.



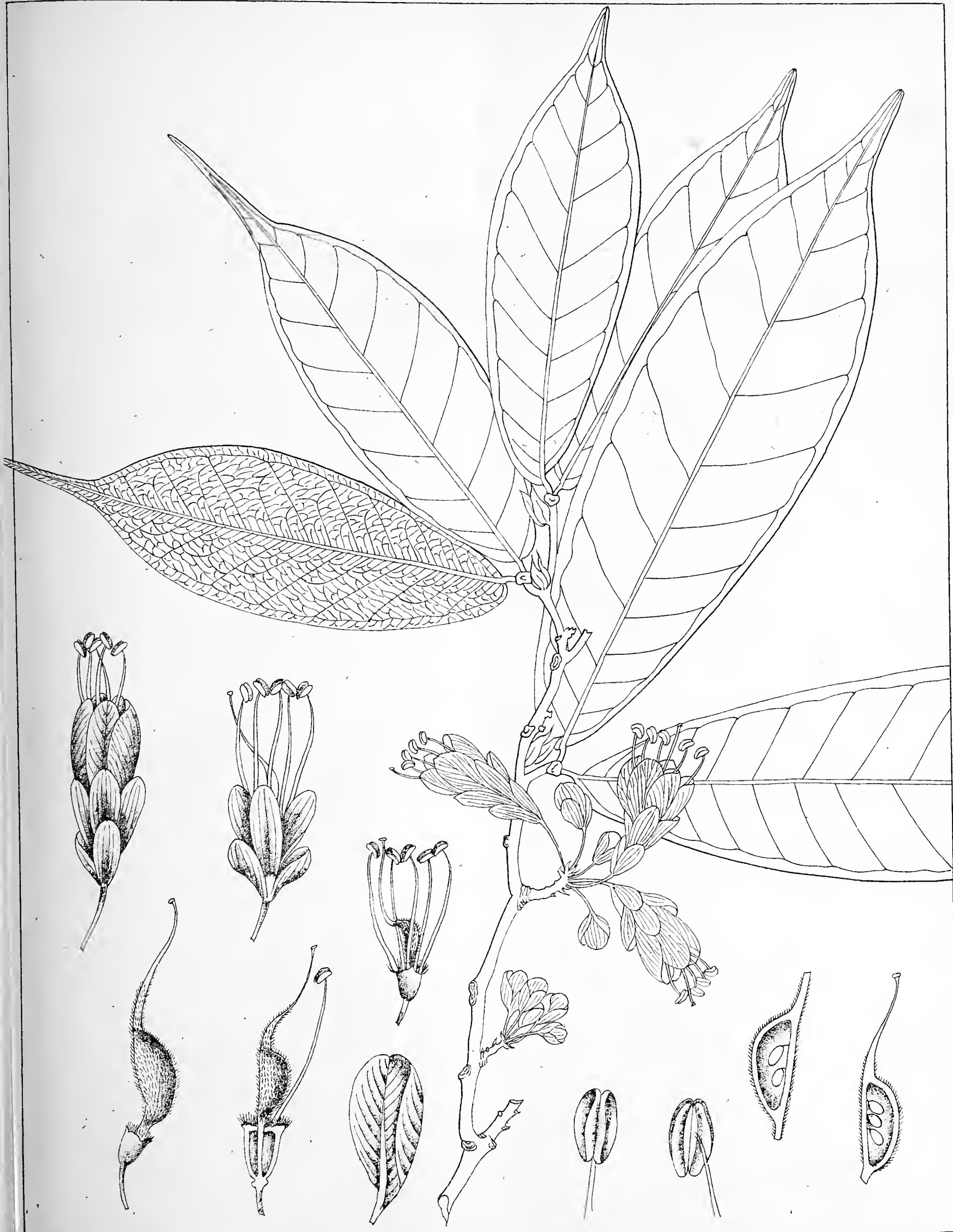


Govindoo, del.

*Banhinia Benthami* (Pidd.)

Dunphy, lith.





Govindoo, del.

*Humboldtia unijuga* (Redd.)

Dumphy, lith.

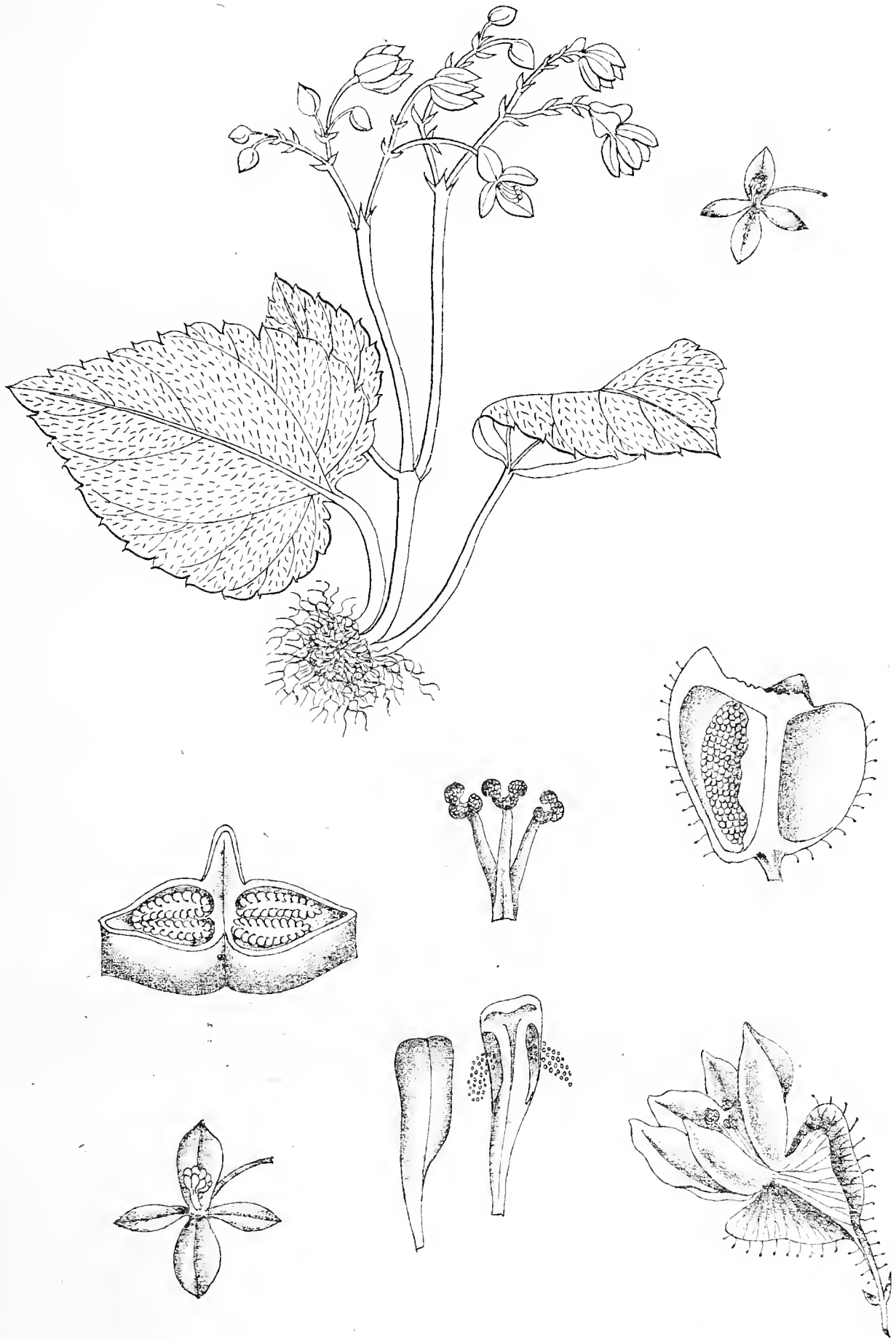




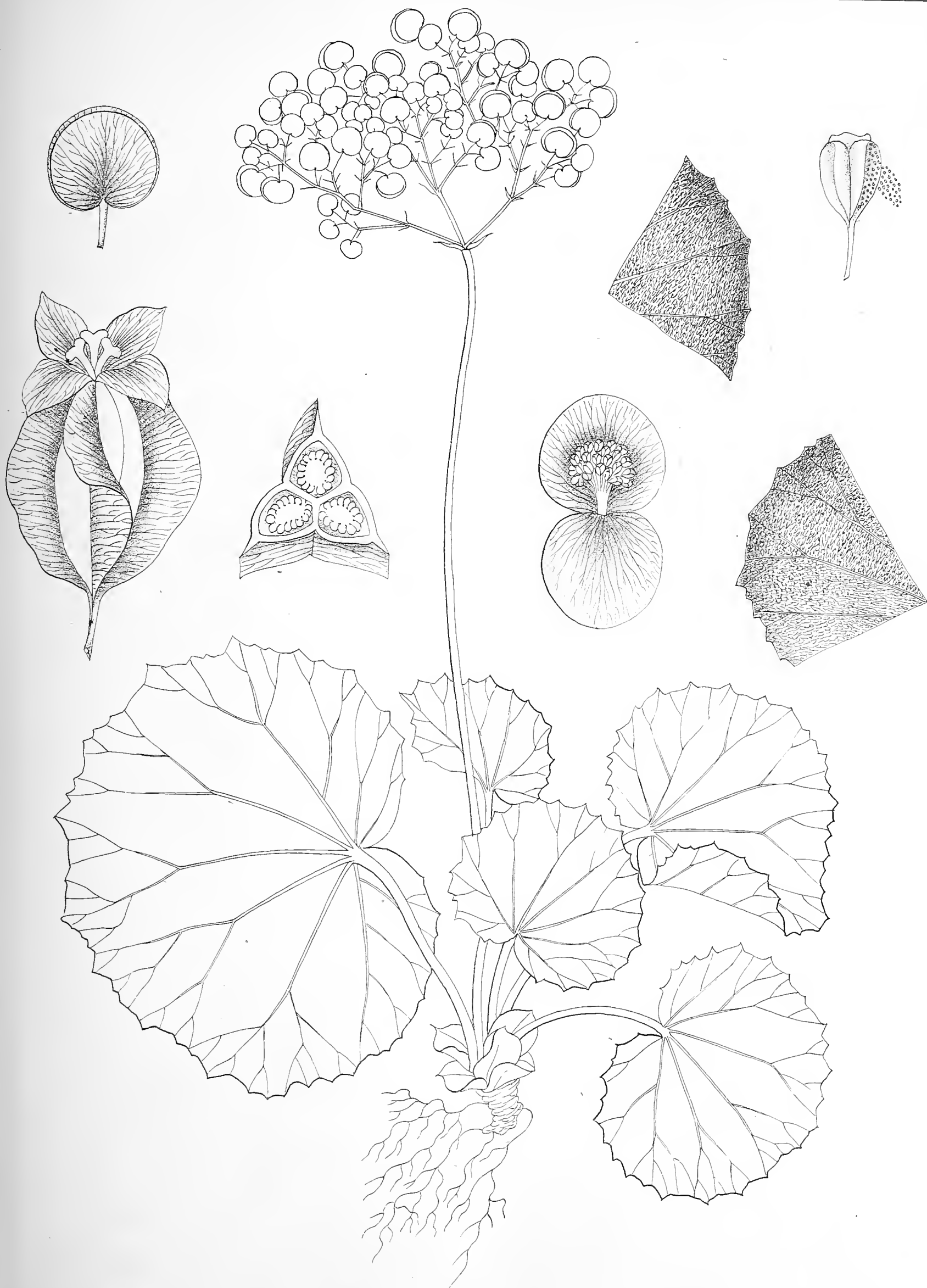




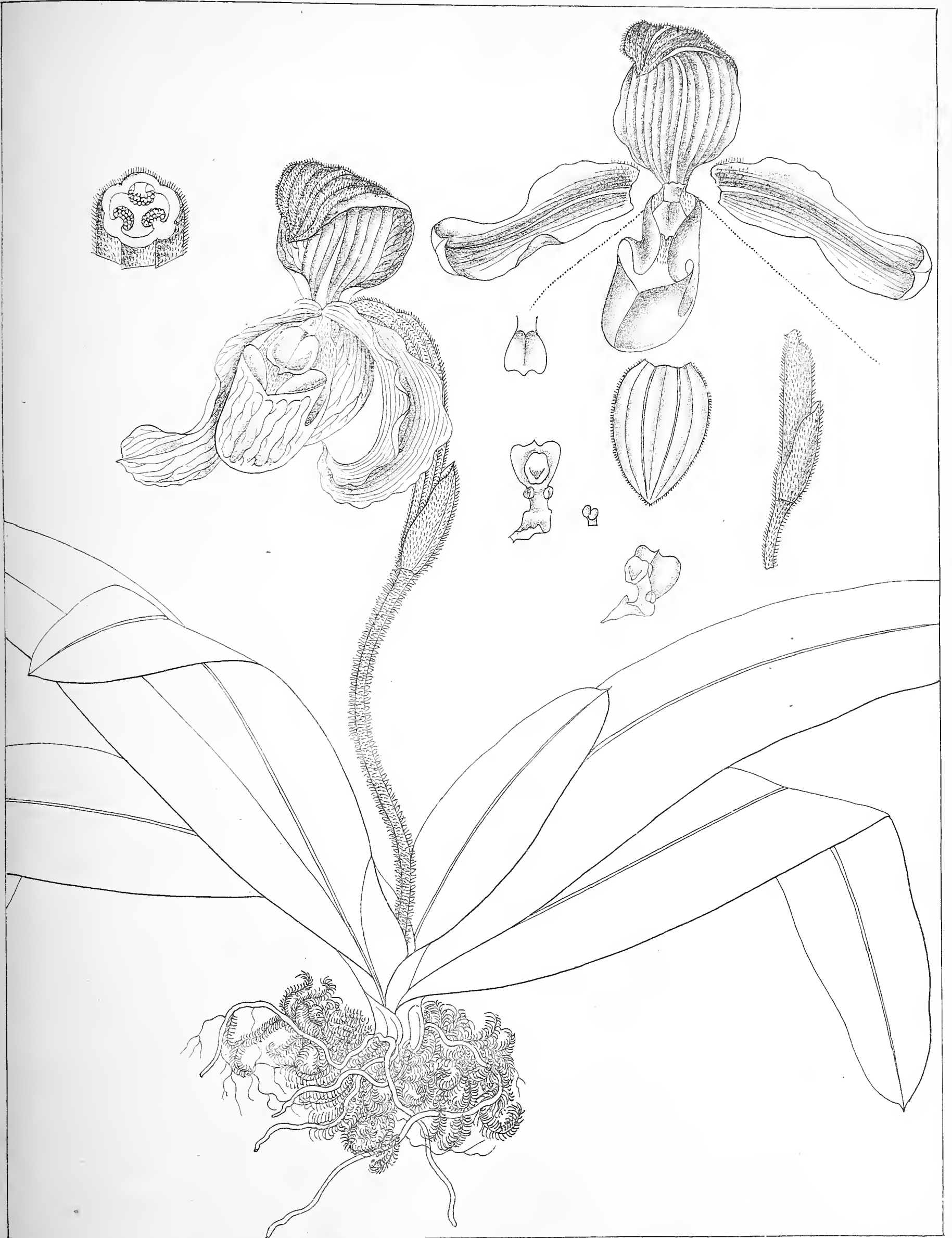












Govindoo, del.

*Cypripedium Drurii* (Redd.)

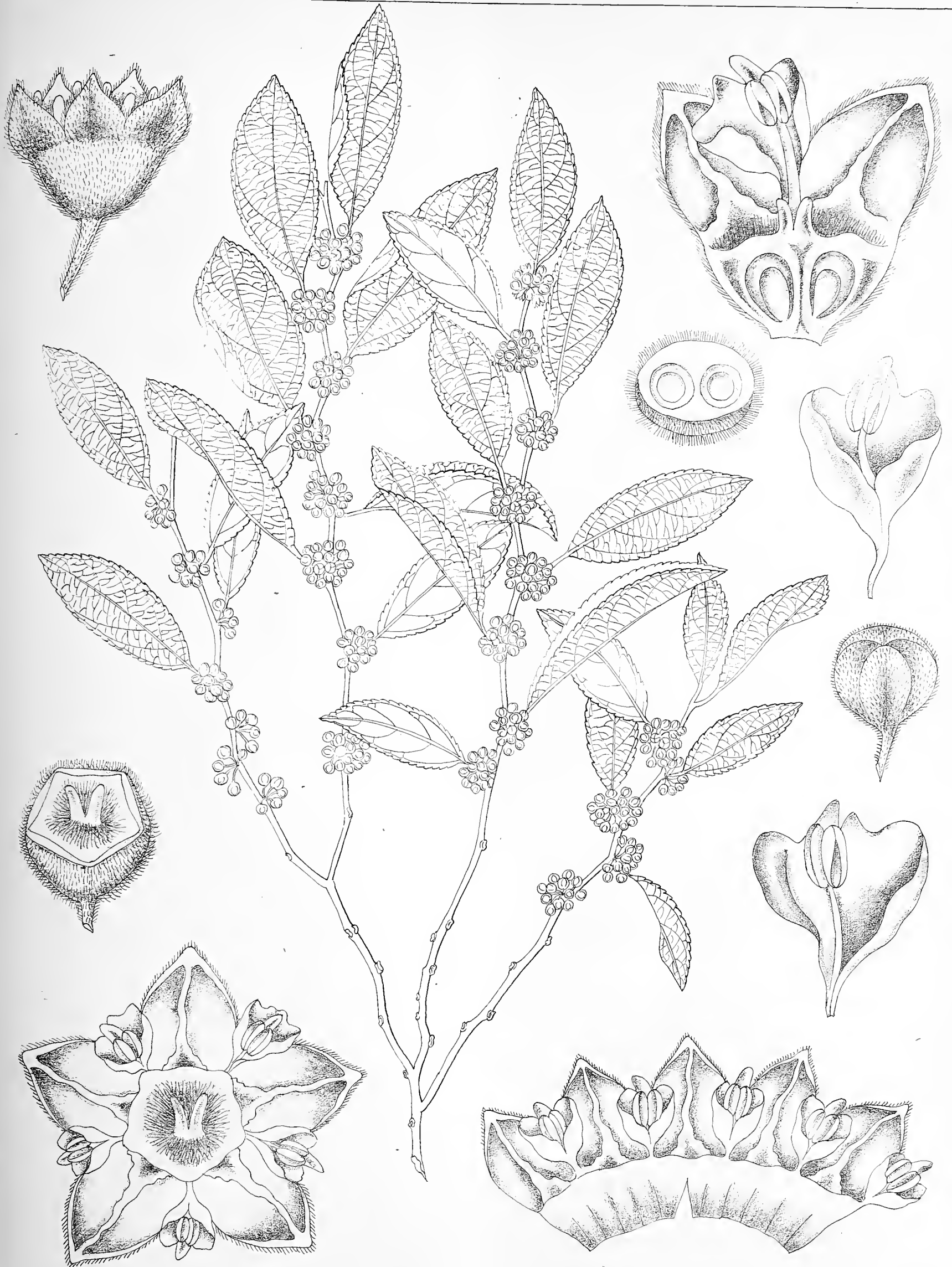
Dumphy, Lith.



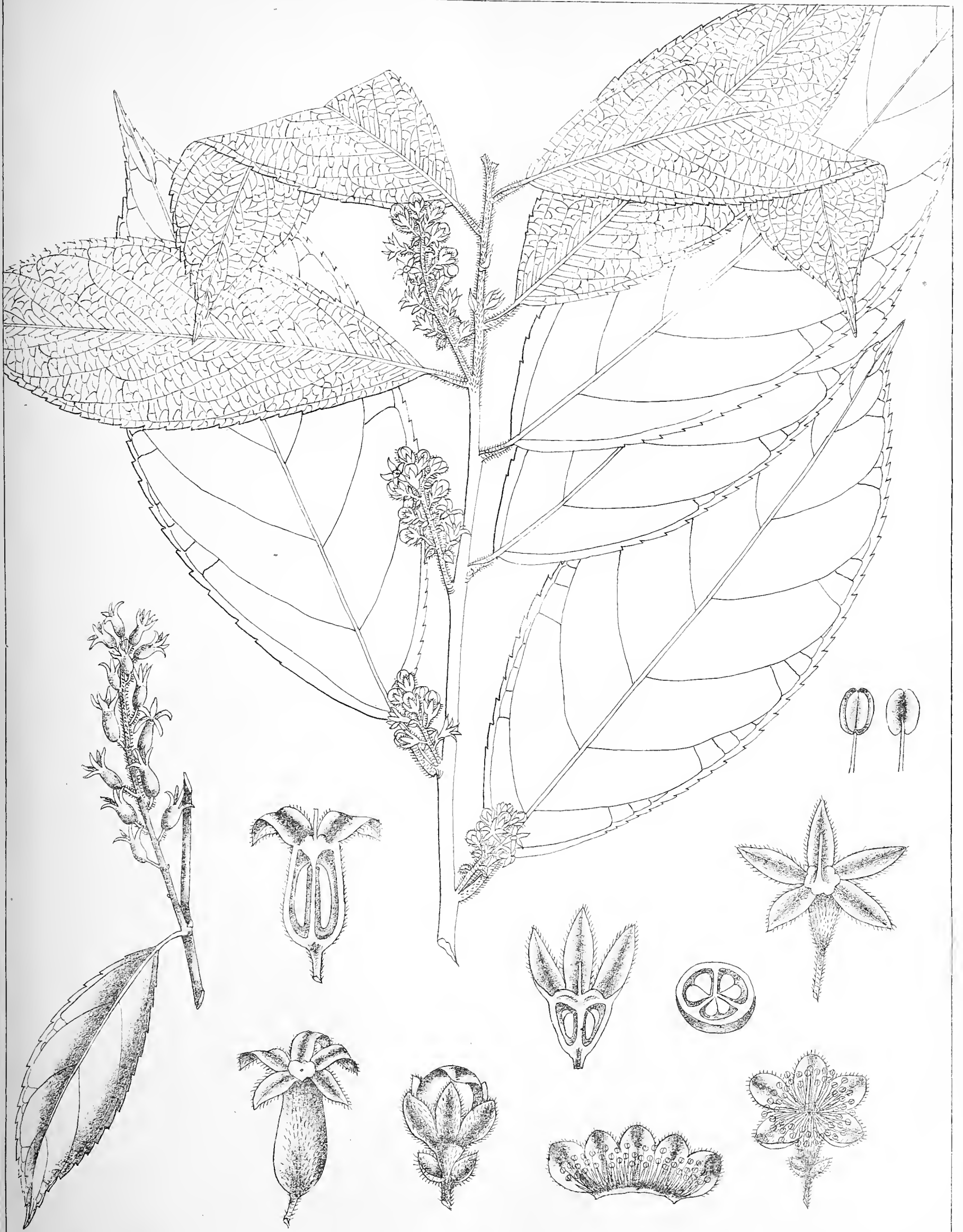












Govindoo, del.

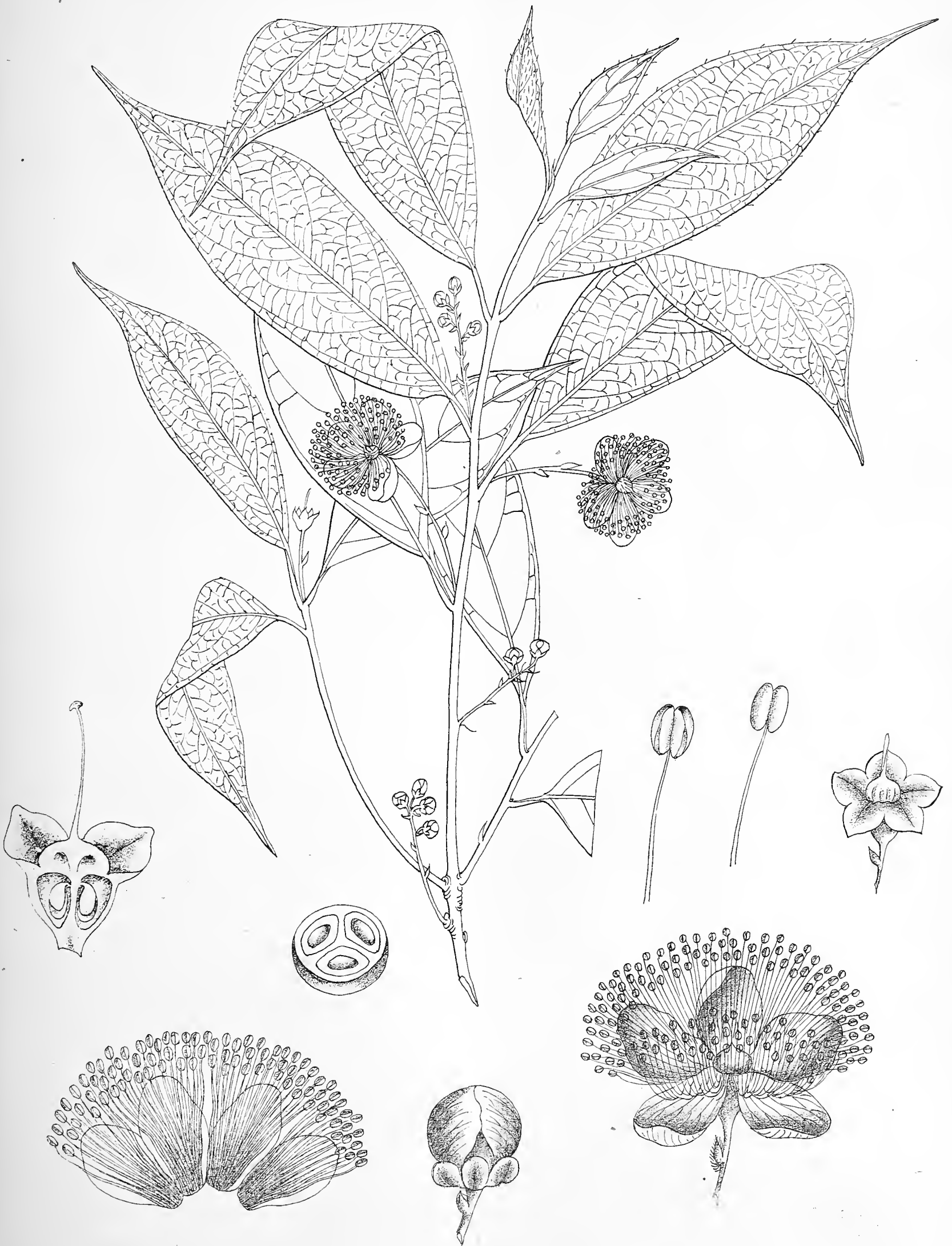
*Symplocos rosea* (Redd.)

Dumphy, Lith.









Govindoo, del.

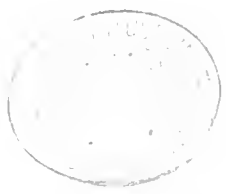
*Symplocos acuminata* (Bedd.)

Dumphy, Lith. -







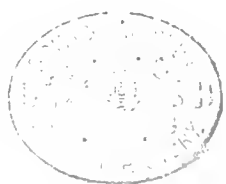


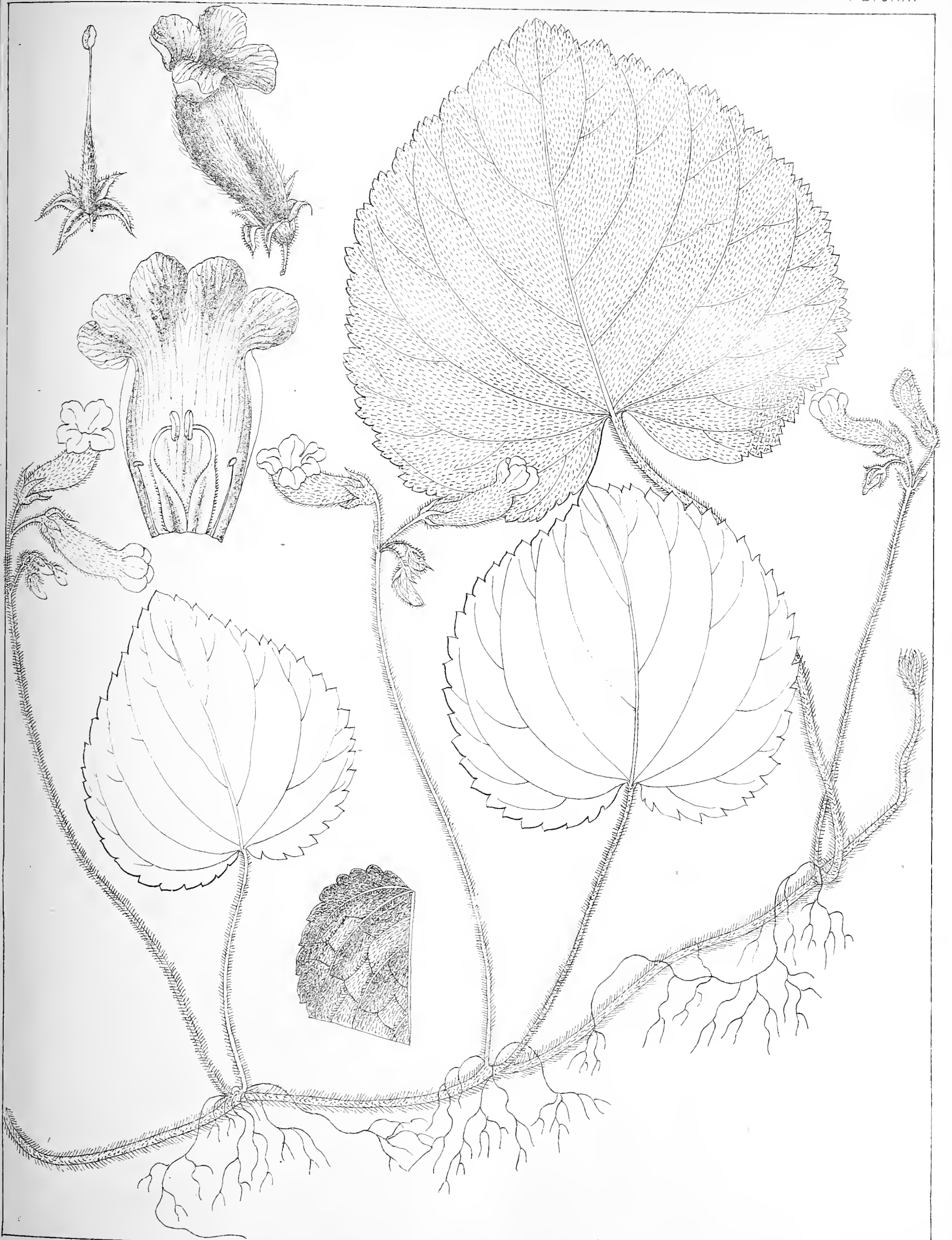


Govindoo, del.

*Eriogonum alpinum* (Benth.)

Dumphy, Lith.





Geisinger, det.

*Didymocarpus repens* (Bedd.)

Dumphy, Lith.



## EBENACEÆ.

**DIOSPYROS SYLVATICA.** (Roxb.) A middling sized tree, glabrous except the inflorescence which as well as the young parts is generally minutely puberulous leaves (turning black in drying) elliptic-oblong acuminate at the apex and attenuated at the base 4-5 inches long by  $1\frac{1}{4}$ -2 broad, petioles 2-3 lines long, male peduncles about as long as the petiole with a caducous bract at the base, 6-10 flowered, pedicels very short, calyx and corol 3-4 lobed the latter 2-3 times as long as the former, anthers 13-22, filament seated on the globose torus single and double mixed, no rudiment of an ovary; female flowers solitary on short peduncles, much larger than the male with an ample calyx, sterile stamens 4 inserted on the corol, styles 3-4, ovary 6-8 celled, fruit spherical 8 lines in diameter, seed oblong 6 lines long, 4 lines broad, albumen ruminate. *Roxb. Fl. Ind. ii. 537*;—*DC. Prod. viii. 231*;—*Thw. En. Pl. Zey. p. 178*.

Common in many of our Western Coast forests up to about 3,000 feet, also in the forests of the Northern division and in Ceylon, called Tella-goda in Teligoo, flowers in the hot weather.

## PLATE No. CXXI.

**DIOSPYROS TOPOSIA.** (Ham.) A middling sized tree, glabrous, leaves coriaceous, elliptic lanceolate attenuated at both ends 4-5 inches long by  $1\frac{1}{2}$ -2 broad, very closely and prominently reticulated (when dry) petioles nearly  $\frac{1}{2}$  an inch long, male inflorescence in 3 flowered cymes on peduncles  $\frac{3}{4}$  inch long on the lower leafless portions of the branchlets or in the axils of the lower leaves, calyx rough but not hairy quite entire when young at length splitting irregularly at the apex, lobes acute unequal, corol hairy on the outside 4 lobed at the apex, stamens 20-30 in pairs of unequal length inserted on to the torus, female flowers solitary, stamens 12-16, stigmas 4, ovary 4-6 celled, fruit spherical size of a very large strawberry glabrous but rough.

Tinnevely hills in damp forests 3-4,000 feet (called Toveray) Ceylon, (called Kahakaala) Silhet mountains. I have never met with the female tree; the specimen figured is from Tinnevely, but the dissections of the female flower are from drawings executed in the Peradenia Herbarium in Ceylon.

## PLATE No. CXXII.

**DIOSPYROS CALYCINA.** (Bedd.) A good sized tree, everywhere glabrous, leaves dark shining green narrow lanceolate attenuated at the base, tapering at the apex into a very blunt point, about  $3-3\frac{1}{2}$  inches long by a little less than 1 inch broad, petioles about  $\frac{1}{4}$  inch long, male cymes about half the length of the leaves 3-9 flowered, calyx small 4 toothed, corol urceolate very gibbous at the base 4 lobed at the apex, bright yellow in color, stamens 6 or 8, each with 2 anthers of equal length, inserted on the disk surrounding the large rudimentary ovary, apex of the anthers inflexed and meeting over the sterile ovary which latter is 5 lobed and terminates in a long acumination, filaments slightly hairy. Female flowers solitary on long peduncles nearly half the length of the leaves, calyx of 4, rarely only 3, large cordate imbricate nerved segments which enlarge with the fruit, corol urceolate gibbous, tube nearly globose, 4 rarely only 3 cleft at the apex, divisions reflexed, staminodia none, ovary 4 celled, stigmas 4 or 3 sessile, fruit globose covered with hairlike scales. *Bedd. Annual Report of the Conservator of Forests Madras Presidency for 1867-68 t. 1 and 2*.

This very curious species of Diospyros has only been observed in the Tinnevely district and southern portions of Madura, where, however, it is very abundant in the ghat forests from the foot up to 3,000 feet elevation; it is called Vellay Toveray and yields a valuable light colored wood, which is much in use in the Tinnevely district.

## PLATE No. CXXIII.

**DIOSPYROS NIGRICANS.** (Dalz.) Arboreous, glabrous turning very black in drying, leaves membranaceous glabrous oblong with a rather sudden acumination, and slightly attenuated at the base, 4-5 inches long by  $1\frac{1}{2}$ -2 broad, petioles  $\frac{1}{4}$ - $\frac{1}{2}$  inch long, male flowers in small 3 flowered cymes crowded on small axillary ramuli, calyx 4 parted to the middle, lobes rounded or sub-acute pilose and ciliate, corol 4 cleft glabrous, lobes rounded or emarginate, stamens about 26 of unequal length, filaments all single and inserted in 2 rows on to the base of the corol, round a small 10 lobed rudiment of an ovary, female flowers solitary, calyx enlarging in fruit with the lobes much reflexed fruit glabrous, globose depressed 8 celled.—*Dalz. Hook. Jour. of Bot. iv. p. 110*.

Bombay ghats, the specimen figured is from Matheran (female specimens imperfect.)

## PLATE No. CXXIV.

**DIOSPYROS PANICULATA.** (Dalz.) A middling sized tree, branches glabrous, leaves glabrous lanceolate oblong obtusely acuminate very coriaceous veins closely reticulated (as in Toposia) 5-9 inches long by  $1\frac{1}{2}$ -2 $\frac{3}{4}$  broad, petioles  $\frac{1}{4}$ - $\frac{1}{2}$  inch long, male flowers in axillary several flowered velvety cymes, about  $\frac{1}{3}$ rd the length of the leaves furnished with large ovate obtuse deciduous bracts, calyx ventricose 5 parted segments foliaceous with the margins reflexed reticulately veined, broadly oval obtuse and apiculated, corol velvety outside, twice the length of the calyx, gibbous at the base and contracted at the mouth, the 5 segments oblong-obtuse as long as the tube, stamens about 20 in pairs subequal in length inserted on the base of the tube and nearly equalling it in length; female flowers solitary from the branches between the leaves, peduncles 2-3 times as long as the petioles furnished with 2 large ovate



bracts about the middle, calyx glabrescent, as in the male but increasing with the fruit, fruit ovoid densely tomentose, 3-4 celled. *Dalz. Hook. Jour. of Bot.* iv. p. 109.

Bombay ghats (Dalzell).—Carcoor ghat (Wynad) 2,000-3,000 feet elevation. My specimens of the female tree are imperfect. I have not observed any difference in the size of the leaves of the 2 sexes, and I have specimens of the male tree from Mr. Dalzell with the leaves 7 inches long

PLATE No. CXXV.

**DIOSPYROS CRUMENATA.** (Thw.) A very large tree, branches glabrous, leaves glabrous oblong abruptly and obtusely acuminate rounded or slightly attenuated at the base 2-5 inches long 1-2 broad, petiole 3-4 lines long; male, cymes pilose 2-3 lines long 3-5 flowered bent downwards, calyx 2 lines long obscurely 4 toothed at the apex, corol hypocrateriform 5 lines long stamens about 12-13 of equal length anthers single seated on the torus; female, flowers large solitary on short thick peduncles (2-3 lines long) calyx 4 lines long pilose on both sides 4 lobed to the middle and dilated between the lobes, lobes rounded apiculate, corol a little longer than the calyx, sterile stamens about 8 equal in length, filaments single seated on the base of the corol, ovary 8 celled stigmas 4, fruit subspherical,  $1\frac{1}{2}$ -2 inches in diameter, at length glabrous 6-8 seeded, seeds black shining 1 inch long  $\frac{1}{2}$  inch broad, albumen ruminant. *Thw. En. Pl. Zey.* p. 179.

Ceylon mountains, 2,000-4,000 feet elevation.

PLATE No. CXXVI.

**DIOSPYROS AFFINIS.** (Thw.) A middling sized tree, branches subglabrous, buds pilose, leaves glabrous subcoriaceous prominently reticulated, lanceolate-oblong attenuated at both ends  $1\frac{1}{4}$ - $4\frac{1}{2}$  inches long by 6-16 lines broad, turning black in drying, petiole 3-5 lines long; male, cymes pilose 3-7 flowered a little longer than the petiole, calyx  $1\frac{1}{2}$  lines long shortly 4 toothed, corol 4 lines long hypocrateriform, stamens about 12 of equal length filaments single seated on the torus; female, flowers solitary large on short peduncles calyx 5 lines long pilose within, subglabrous on the outside, 4 cleft to the middle dilated between the lobes, lobes with long acuminations, sterile stamens 8 single of equal length seated on the base of the corol, ovary 6 celled styles 4 fruit spherical apiculate 1 inch long at length glabrous 4 seeded, seed 6-7 lines long 4 lines broad, albumen ruminant. *Thw. En. Pl. Zey.* p. 179, nearly allied to *D. crumenata*.

Ceylon mountains.

PLATE No. CXXVII.

**DIOSPYROS QUÆSITA.** (Thw.) A large tree, branches glabrous, leaves glabrous prominently reticulated oblong abruptly acuminate attenuated at the base 3-7 inches long by  $1\frac{1}{2}$ -3 broad, turning blackish when dried, petioles 3-7 lines long channelled above as is the costa of the leaf; male, cymes 3-7 flowered pilose about the length of the petiole, calyx shortly 5 toothed, corol hypocrateriform, stamens about 16 of equal length, filaments single seated on the torus; female, flowers solitary calyx 5 lobed to the middle, dilated between the lobes, lobes acute, fruit subspherical 2-2 $\frac{1}{2}$  inches long. *Thw. En. Pl. Zey.* p. 179.

Ceylon, in the dense forests at the south of the island at no great elevation; this is the tree which yields the valuable calamander wood of commerce.

PLATE No. CXXVIII.

**DIOSPYROS PRURIENS.** (Dalz.) A small or middling sized tree, young branches densely hirsute with long yellow hairs, leaves narrow-oblong with a blunt acumination and more or less cordate at the base glabrous on the upper side except the costa, very hirsute beneath 3-5 $\frac{1}{2}$  inches long by 1-2 $\frac{1}{2}$  broad, petioles 1-2 lines long; male, peduncles 2-3 times as long as the petioles axillary or between the axils, numerous and often congested on small young ramuli 1 flowered or very rarely with 2 flowers, calyx 4 parted divisions linear oblong obtuse reticulated glabrous within, very hairy on the outside, equalling the tube of the corol, corol hirsute on the outside, limb 4 parted with the divisions as long as the tube, stamens about 14 connate at the base unequal in length and seated on the torus surrounding a very small hairy rudiment of an ovary; female inflorescence as in the male, but corol more gibbous at the base, sterile stamens 4, very small on the corol tube, styles 2, stigmas dilated and more or less lobed, ovary very hairy 4 celled, fruit ovate-conical  $1\frac{1}{2}$  inch long densely covered with stinging hairs. *Dalz. Hook. Jour. of Bot.* iv. p. 110.

Very common throughout the Wynad up to 3,000 feet elevation, Anamallays, South Canara ghats and plains, Tinnevely and Bombay ghats, also found in Ceylon.

PLATE No. CXXIX.

**DIOSPYROS INSIGNIS.** (Thw.) A very large tree, young branches slightly pilose, leaves subopposite or alternate submembranaceous glabrous oblong acuminate, attenuated or rounded at the base, 4-14 inches long by  $1\frac{1}{2}$ -6 inches broad, petioles 3-5 lines long; male, capituli many flowered, flowers very small, calyx pilose  $1\frac{1}{2}$  lines long 4 parted to the middle, lobes acute, corol 4 lines long pilose on the outside, stamens unequal in length 14-20 single, in pairs, or occasionally 3 on the same filament partly on the base of the corol tube and partly on the torus round a small abortive ovary; female, flowers 1-3 axillary sessile, ovary 8 celled, fruit subspherical seated on the thick woody enlarged calyx which has reflexed margins. Seed 11 lines long, 6 lines broad, albumen ruminant. *Thw. En. Pl. Zey.* p. 180.

Anamallays in dense forests 2-3,000 feet elevation. Ceylon 2,000 feet. I have no perfect female flower for analysis.

PLATE No. CXXX.

**DIOSPYROS OPPOSITIFOLIA.** (Thw.) A middling sized tree, leaves opposite slightly pilose when young at length quite glabrous firm in texture ovate or elliptic abruptly shortly-acuminate, rounded at the base veinlets parallel obscure, 2-6 inches long by  $1\frac{1}{2}$ -3 broad, petioles 1-2 lines long; male, capituli few flowered, calyx 1 line long 4 lobed to nearly the middle, lobes acute, corol slender about 3 lines long, stamens about 8 unequal; female flowers unknown.

Ceylon, up to an elevation of 1,000 feet; called Kalumidereya. The timber much resembles the true calamander wood; the plate is taken from a drawing executed in the Peradenia Herbarium in Ceylon.

PLATE No. CXXXI.

**DIOSPYROS GARDNERI.** (Thw.) A middling sized tree, branches terete glabrous, buds fusco-pilose, leaves membranaceous glabrous and shining inconspicuously veined narrow oblong acuminate a little narrowed at the base, 3-7 inches long by  $1\frac{1}{2}$ -2 broad, petioles 3-4 lines long. Male, flowers 1-4 axillary subsessile, calyx 2 lines long 4 parted to the middle, lobes triangular acute, corol 5 lines long, tube slightly inflated, stamens about 12 all more or less connate at the base, filaments pilose; female, flowers solitary erect, calyx  $2\frac{1}{2}$  lines long, lobes recurved, margins reflexed, ovary 8 celled, berry depresso-spherical apiculate (immature), 1 inch long fulvo-pilose when young at length glabrous shining and half hid in the much enlarged calyx. *Thw. En. Pl. Zey. p. 181.*

Ceylon, up to 2,000 feet elevation; called Kadoombaieya. Yields a valuable timber for building and cabinet purposes.

PLATE No. CXXXII.

**DIOSPYROS MICROPHYLLA.** (Bedd.) A lofty tree, trunk very straight, young branches verticillate, hirsute with long yellowish hairs, old branches glabrous, leaves alternate, elliptic obtusely acuminate, slightly attenuated at the base glabrous above, sparingly hirsute with long hairs beneath when young, at length glabrous  $\frac{3}{4}$  to  $1\frac{1}{2}$  inches long by  $\frac{3}{8}$  to  $\frac{5}{8}$  of an inch broad, petioles 1-2 lines long; male, capituli axillary subsessile 3 flowered bracteate, flowers very small about 1 line long, calyx 4 parted to the middle, divisions ovate acute hirsute on the outside, corol 4 cleft divisions rounded apiculate, hirsute on the outside in a line down the centre, anthers sixteen in pairs 1 longer than the other inserted on to the base of the corol tube, rudiment of the ovary small hairy inconspicuously 8 lobed; female flowers solitary in the axils, as in the male, no rudiment of stamens, ovary 4 celled, stigmas 2—fruit not seen.

Anamallays, dense forests up to 3,000 feet elevation; very common in South Canara, forests of the ghats and plains (Sooleya) Wynad; it has the habit of *Leucoxydon buxifolium*, *Mig.*

PLATE No. CXXXIII.

**DIOSPYROS CANARICA.** (Bedd.) A good sized tree, glabrous, leaves oblong to obovato-oblong, with a blunt, acumination glabrous paler beneath 5-9 inches long by  $1\frac{1}{2}$ -3 broad, petiole  $\frac{1}{2}$ - $\frac{3}{4}$  inch long, male capitula axillary many flowered subsessile, flowers very small, calyx 5 cleft  $\frac{1}{3}$  or  $\frac{1}{2}$  down, sericeous, corol about double as long as the calyx very silky on the outside stamens 10 unequal in length in pairs inserted on to the base of the corol tube, a small ovoid hairy rudiment of an ovary; female flowers in axillary capitula, as in the male but rather larger, calyx 5 parted to below the middle, dilated between the lobes, and margins reflexed, sterile stamens 8-10 unequal in length in pairs inserted on to the base of the corol tube, ovary 4 celled, styles 2—fruit not seen.

South Canara, plains near the foot of the ghats; called Kara mara, allied to *D. Arnotiana*, *Mig.*

PLATE No. CXXXIV.

**DIOSPYROS THWAITESII.** (Bedd.) A middling sized tree, branchlets, young leaves and inflorescence rufo-tomentose, leaves elliptic with a long gradual acumination slightly attenuated at the base, 4-5 inches long  $1-1\frac{1}{2}$  broad, reddish brown when dry, petioles about  $\frac{1}{2}$  an inch long. Male, flowers 1-3 sessile in the axils, bracteate, stamens 10-12 in pairs of nearly equal length inserted on to the base of the corol tube; female, flowers as in the male, calyx enlarging in fruit, sterile stamens 5 on the corol tube, each anther tipped with 2 very long setæ, styles 3, 2 cleft, ovary 4 celled, fruit subspherical, densely rufo-pilose at length glabrous 7-8 lines in diameter, seed oblong black transversely striated 5 lines long  $2\frac{1}{2}$  lines broad, albumen ruminate. *Diospyros Candoliana*. *Thw. En. Pl. Zey. p. 181—*(not Wight.)

Ceylon, at no great elevation; allied to, but quite distinct from *D. Candoliana* of Wight.

PLATE No. CXXXV.

**DIOSPYROS NILAGIRICA.** (Bedd.) A middling sized tree, branchlets, young leaves and inflorescence densely rufo-tomentose, leaves elliptic attenuated at both ends glabrescent and shining above 5-6 inches long by about 2 inches broad; male flowers, in axillary subsessile several flowered capitula bracteate, calyx 4 cleft to about the middle, corol 4 cleft with the lobes rounded, stamens, 16 unequal in length in 8 pairs inserted on to the base of the tube of the corol, filaments hairy, a small hairy ovoid rudiment of an ovary; female flowers sessile or 2 in the axils of the leaves, calyx enlarging in fruit dilated between the lobes with the margin reflexed, sterile stamens 8 alternately longer on single filaments inserted on to the base of the corol tube, styles 4 much reflexed, stigmas dilated, ovary 8 celled, fruit globose depressed size of a small greengage.

Sispara ghat (Nilgiris), allied to *D. Candoliana* of Wight.

PLATE No. CXXXVI.

**DIOSPYROS HIRSUTA.** (L.) A middling sized tree, young leaves and inflorescence ferrugineo-tomentose, leaves subcoriaceous elliptic or oblong more or less abruptly acuminate, slightly narrowed at the base, at length subglabrous 3-8 inches long 1-3 inches broad, petiole tomentose 3-4 lines long; male capitula many flowered, calyx 1 line long, 5 parted nearly to the middle, corol about 2 lines long, rudiment of ovary small, stamens 5 on the torus round the rudimentary ovary; female flowers 1-3, calyx thick 3 lines long 5 parted to beyond the middle, lobes triangular acute margins reflexed, corol a little longer than the calyx, sterile stamens 5 on the corol tube, ovary 10 celled, fruit ovoid apiculate fulvo-tomentose 9 lines long 6-10 seeded seated on the enlarged calyx, seeds black transversely striated 7 lines long 3 lines broad, albumen ruminant.—There are occasionally female flowers in the capitula on the male tree, they are small and have the ovary only 6 celled and are probably abortive. *Thw. En. Pl. Zey. p. 151*;—*L. f. Supp. p. 440*;—*A. DC. Vol. viii. p. 223*.

Ceylon forests of the south of the island.

PLATE No. CXXXVII.

**DIOSPYROS MOONIL.** (Thw.) A middling sized tree, branches terete slightly pilose when young but soon glabrous, leaves coriaceous oblong acuminate rounded at the base, glabrous above, costa and petiole channelled, sparingly pilose beneath 5-12 inches long  $1\frac{1}{2}$ -4 inches broad, petiole 3 lines long, inflorescence axillary, fulvo-pilose, male capitula 6-10 flowered, calyx 2 lines long 5 parted nearly to the middle, corol about 4 lines long, stamens 5. Female flowers 1-2, calyx thick 3 lines long margin revolute, corol about equal to the calyx in length, stigma obscurely 5 lobed, fruit  $1\frac{1}{2}$  inches long 6-10 seeded, seated on the enlarged calyx, seed oblong compressed, transversely rugose, blackish 7 lines long 4 lines broad, albumen ruminant. *Thw. En. Pl. Zey. p. 182*.

Ceylon at no great elevation—(from a drawing executed in the Ceylon Herbarium.)

PLATE No. CXXXVIII.

**DIOSPYROS ATTENUATA.** (Thw.) A middling sized tree, leaves membranaceous glabrous or sparingly pilose oblong acuminate attenuated at the base into a short petiole, closely and minutely reticulated, pale beneath,  $1\frac{1}{2}$ -4 inches long,  $\frac{1}{2}$ -1 inch broad, petiole 1-2 lines long, inflorescence strigose, with brownish yellow hairs amongst which are mixed some black hairs, male capitula 3-10 flowered, calyx 1 line long 4-5 parted to below the middle, lobes lanceolate acute, corol about 2 lines long, stamens 5 on the base of the corol tube round the rudiment of an ovary, female flowers solitary axillary, calyx 3-4 lines long 4-5 parted to below the middle lobes lanceolate acute reflexed at the margin, corol a little longer than the calyx, sterile stamens 5 on the corol tube, stigmas 2 short spathuliform, ovary 4 celled fruit oblong acuminate 1- $1\frac{1}{2}$  inches long, 2-3 seeded, seeds chestnut shining oblong acuminate, albumen not ruminant. *Thw. En. Pl. Zey. p. 183*.

Ceylon, Pasdoon Corl, at no great elevation; the flowering branch of the male tree is from a drawing executed in the Peradenia Herbarium, Ceylon.

PLATE No. CXXXIX.

**D. EBENUM, D. EXSCULPTA, D. WIGHTIANA, AND D. EMBRYOPTERIS.** Valuable timber trees in Southern India, have been figured in the Flora Sylvatica. *D. assimilis* figured in the Conservator's Annual Report for 1866-67, is perhaps only a variety of *ebenum*; *D. Candoliana* (Nilgiris), *dubia* (foot of Sevagherries and Courtallum), *montana* (eastern and western side of the Presidency), *ovalifolia* (throughout the western forests), *chloroxylon* (capitulata, Wight), and *cordifolia*, Eastern side, and *obovata* (locality not given) have all been figured by Dr. Wight, and I have met with them all frequently except the last species which is quite unknown to me.—*Diospyros acuta* (Thw.) is a Ceylon tree, of which I have no specimen, and I have observed several other species in the dense forests of our Western Coast, of which I have not been able to procure specimens in flower, the genus is well represented in Bengal and Birmah.

## GERANIACEÆ.

**IMPATIENS PARASITICA.** (Bedd.) Parasitic on trees, stems very succulent often moniliform and throwing out roots, leaves crowded about the apex of the branches glabrous long petioled ovate acute, erenate with incurved bristles  $1\frac{1}{2}$ -2 inches long by about 1 inch broad, petioles  $\frac{1}{2}$ - $\frac{3}{4}$  inch long, peduncles axillary very short bearing 2 (rarely only 1) long pedicels (about 9 lines long) upper sepals green with a foliaceous crest, lateral ones very small linear acute, lower one bright red sacate with a recurved spur, upper of compound petals much smaller than the lower, both almost entirely hid in the sacate sepal, capsule glabrous ovate gibbous, seeds numerous small. *Bedd. Mad. Journ. of Lit. 1859*.

Anamallays on trunks of trees 5,000-7,000 feet. I have not met with this very lovely species anywhere but on the Anamallays, but it is now in cultivation on the Nilgiris; it is allied to *I. Jerdonii* and *viridiflora*, and though its flowers are smaller than those of *Jerdonii*, it is a far more beautiful species, as it is a most profuse bloomer, a small mass in a pot being often covered with 60 or 80 flowers and remaining in full bloom from May till November; it is quite hardy in the open air in Ootacamund, never being injured by the slight frosts we experience, it grows admirably in lumps of brick and charcoal, and cuttings root readily if stuck into the same compost.

PLATE CXL.



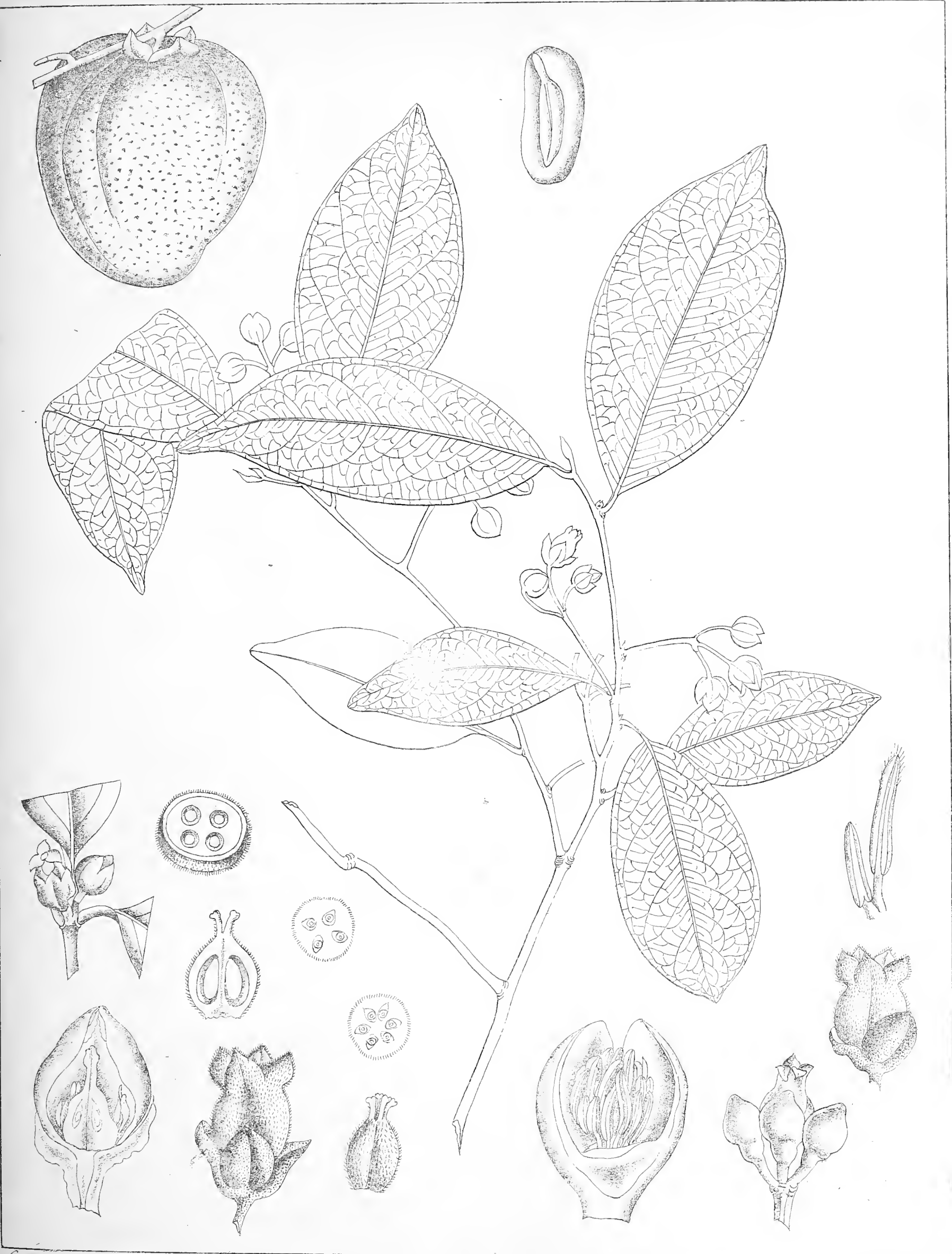
Govindoo, del:

Dumphy, Lith.

*Dispyros sylvatica* (Roxb.)







Govindoo, del.

*Diospyros Toxaria* (Ham.)

Dumpey, Lit.





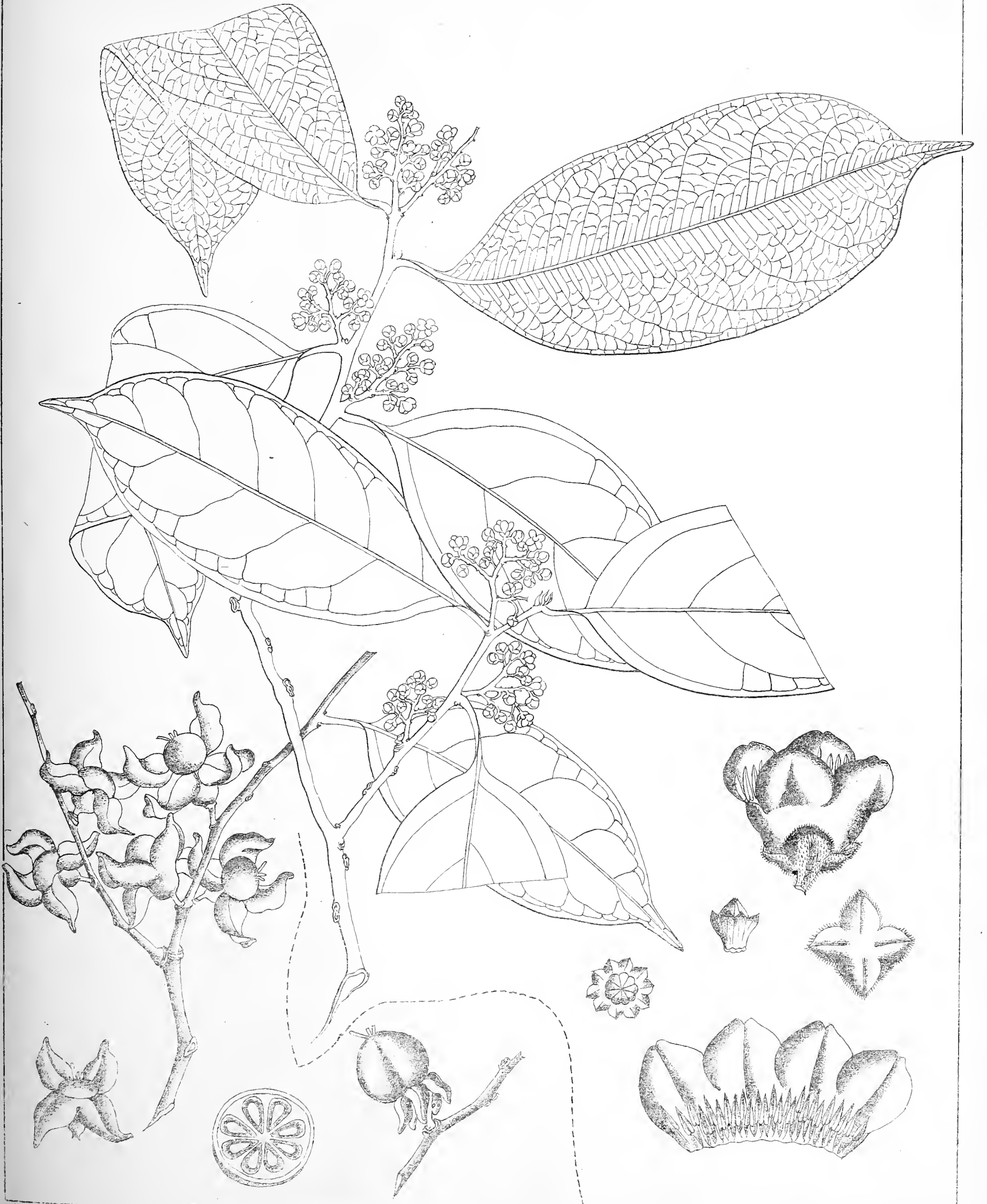
Govindoo, det.

*Diospyros calycina* (Redd.)

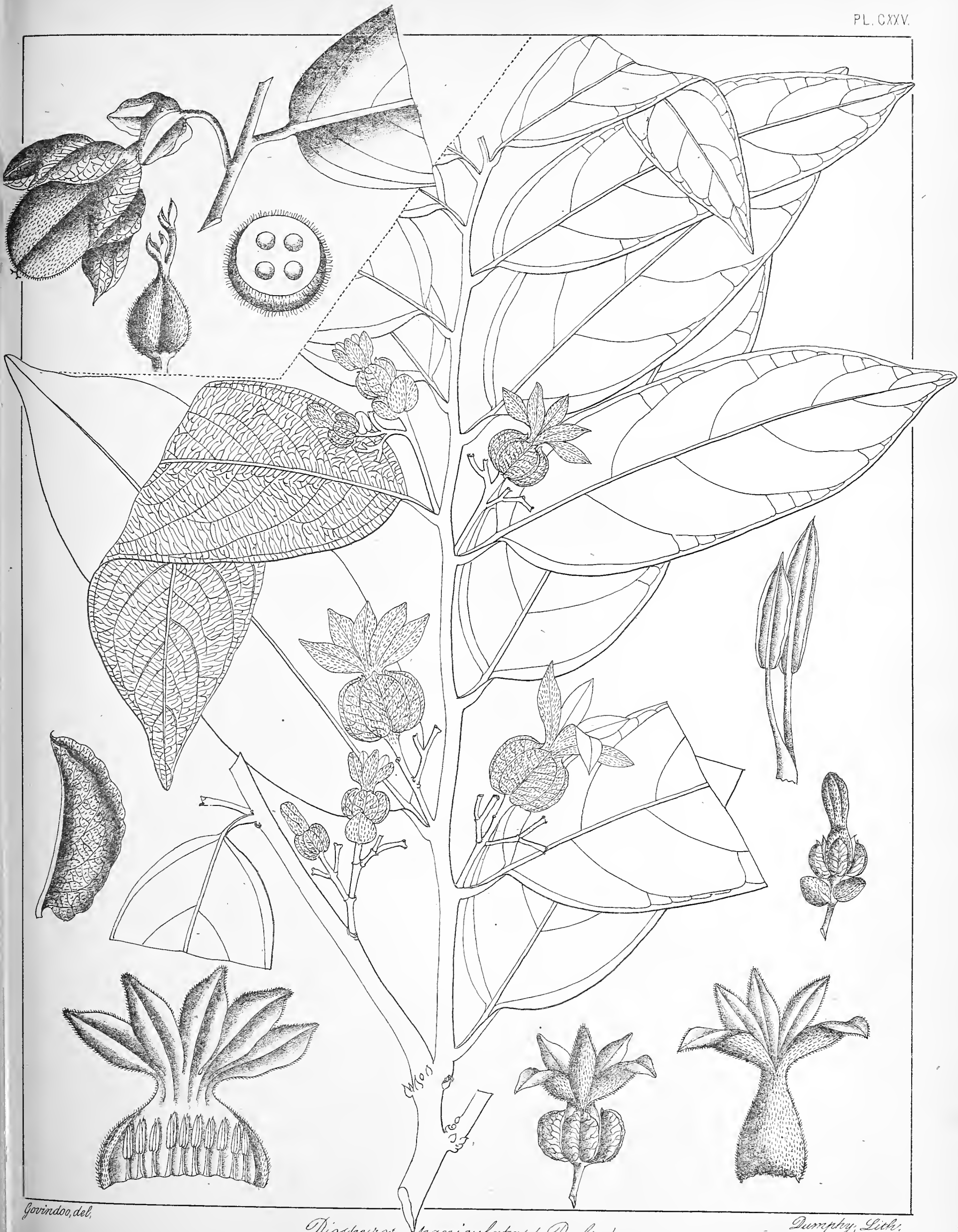
Dumphy, Lith.







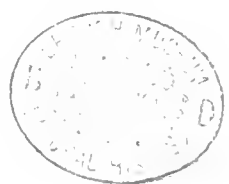


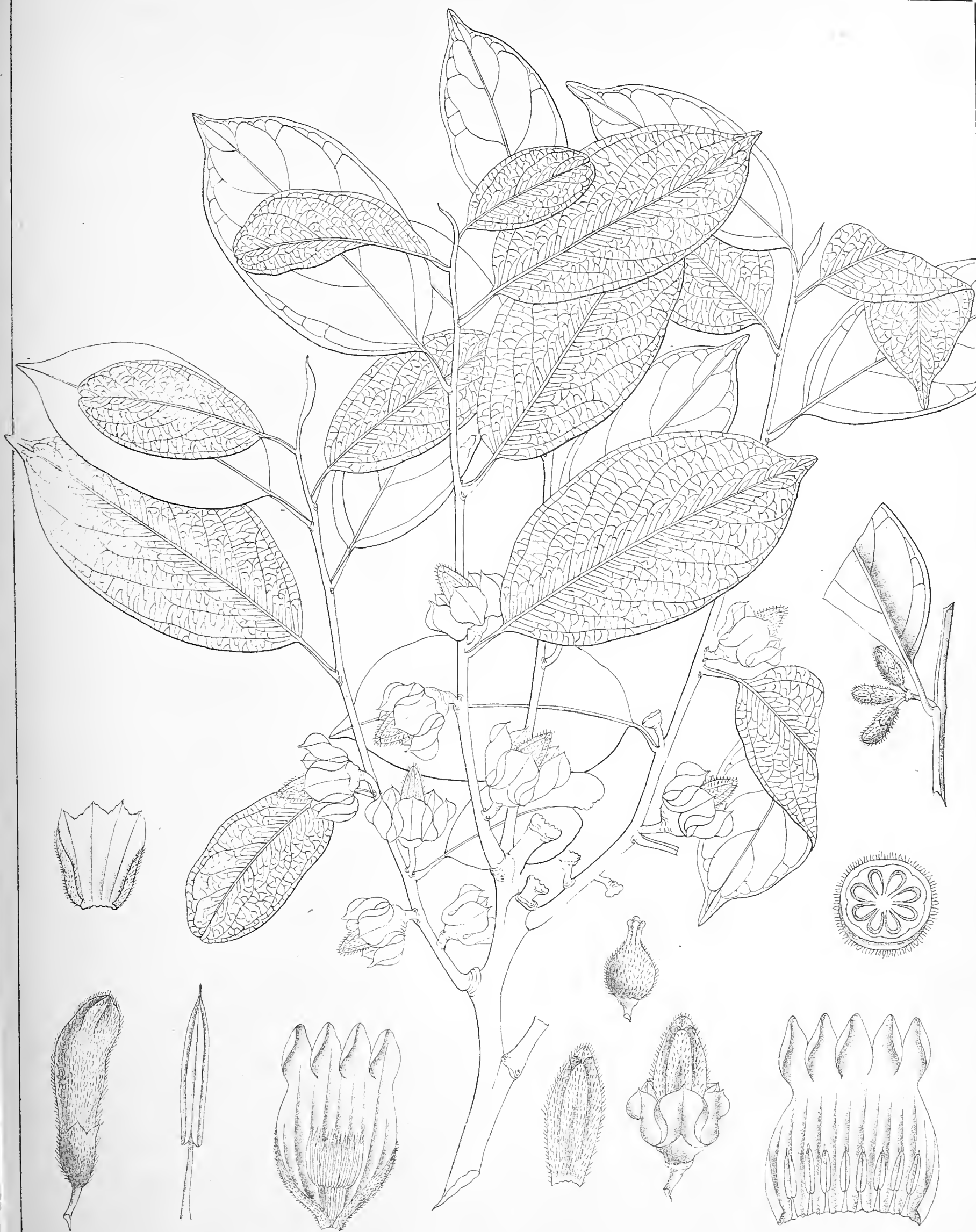


Govindoo, del.

*Diospyros paniculata* (Dalm.)

Dumphy, Lith.





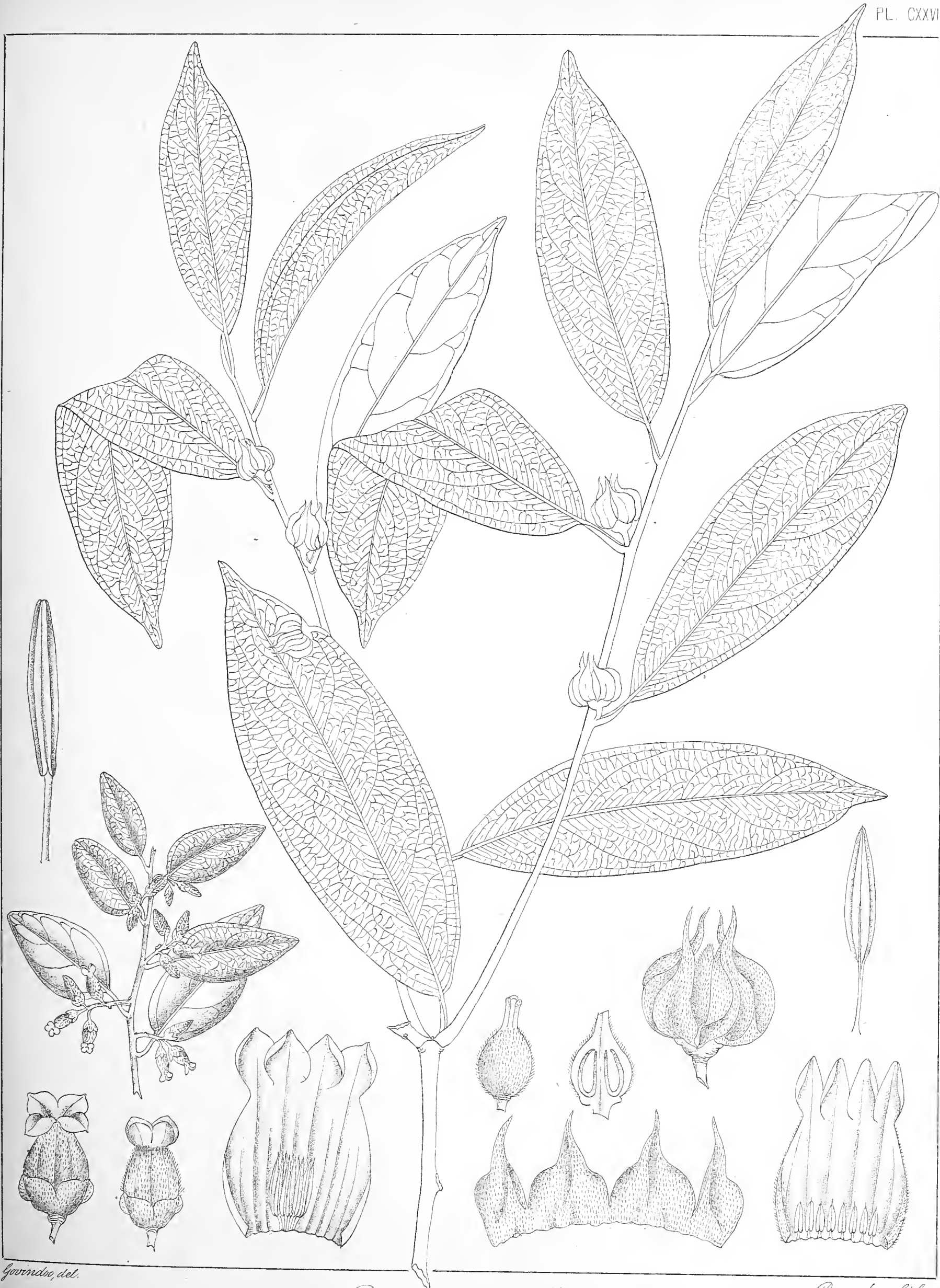
Govindoo, del.

*Diospyros crumenata* Thunb.

*Dumfries, Litch.*







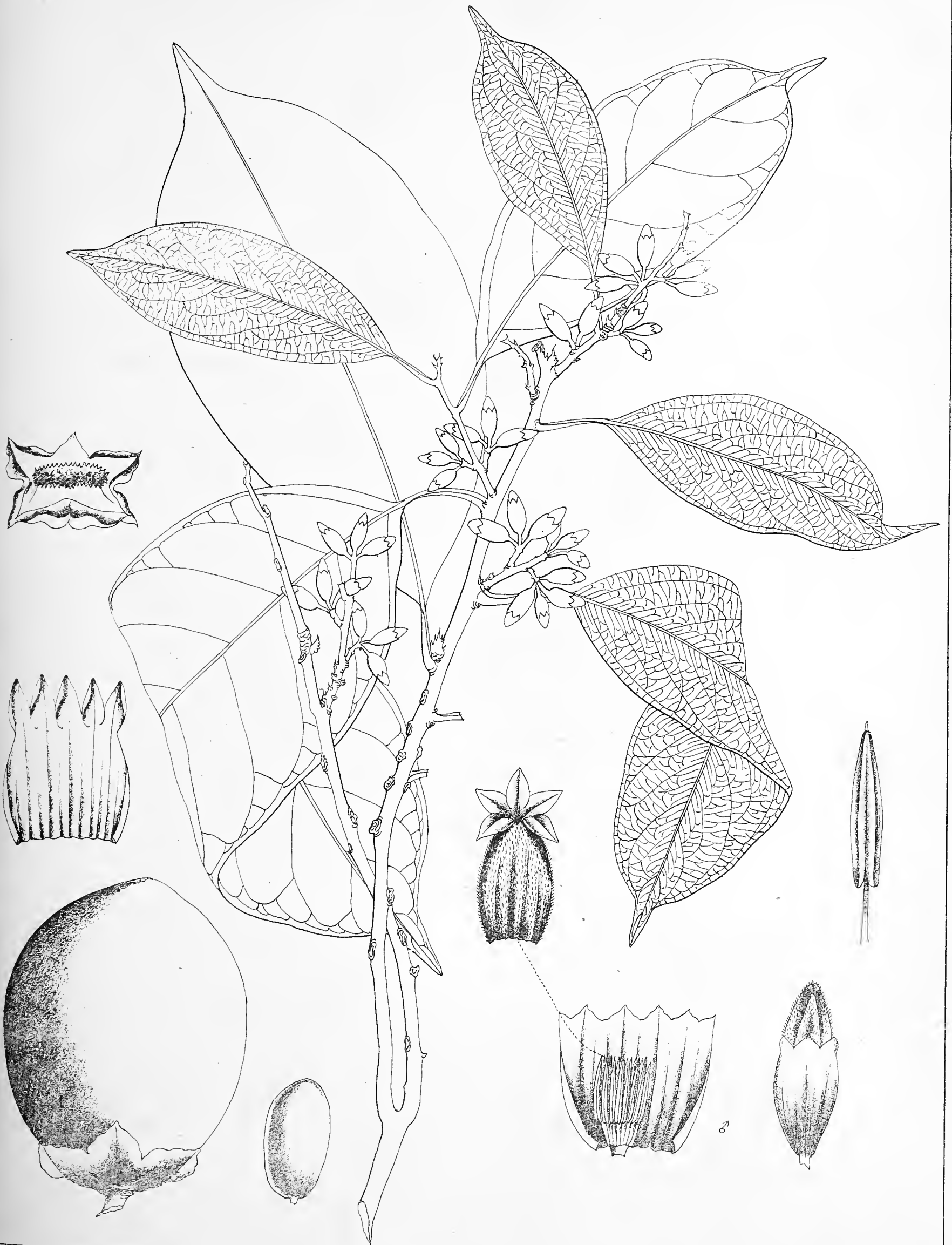
Goirindoo, del.

*Diospyros affinis* (Thunb.)

Dumphy, Lith.





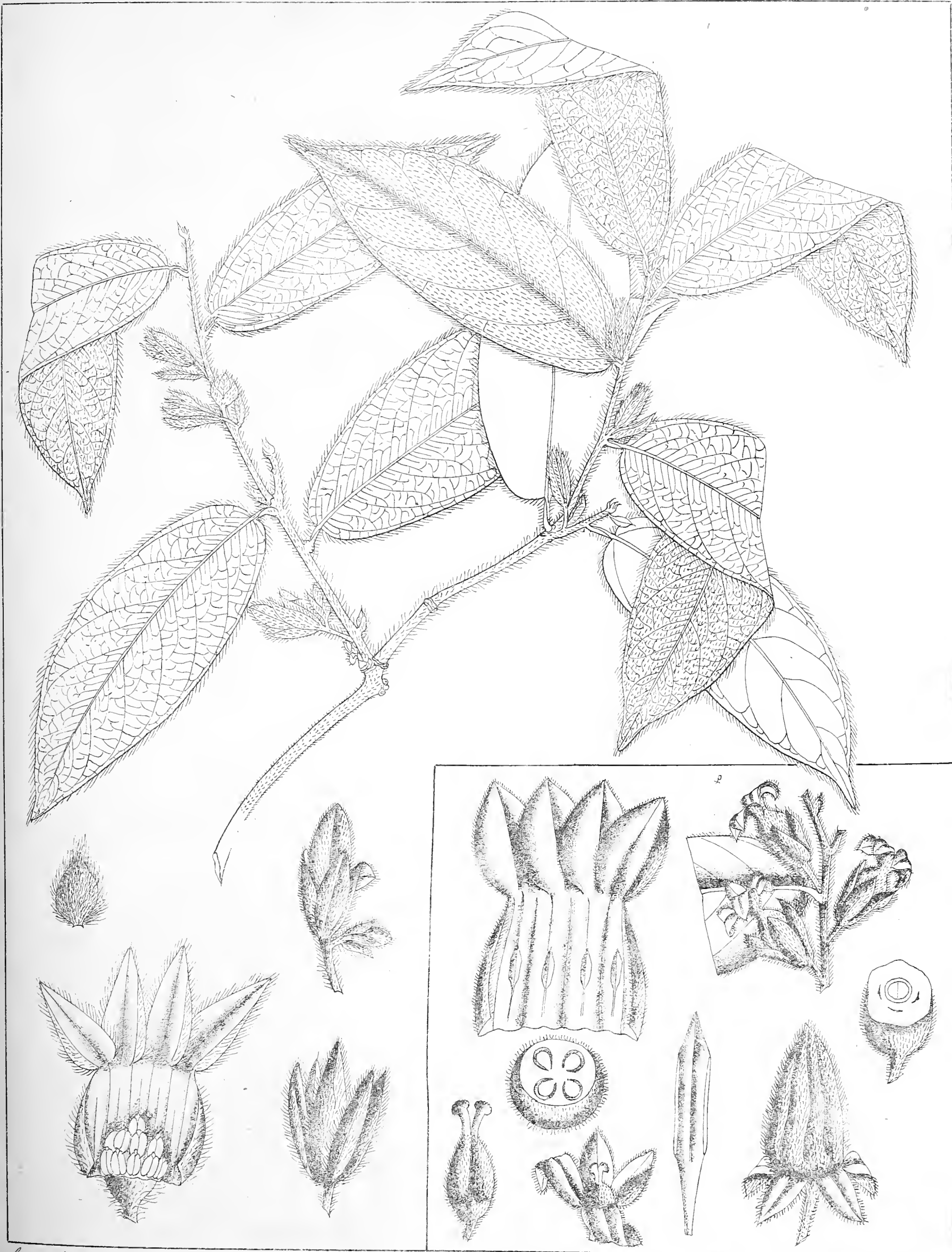


Gouandoo, del.

*Diospyros guaceta* (Thunb.)

Dumphy, Lith.





Garrido, del.

*Diospyros pruriens* (Dalea.)

Dumpey, Lith.





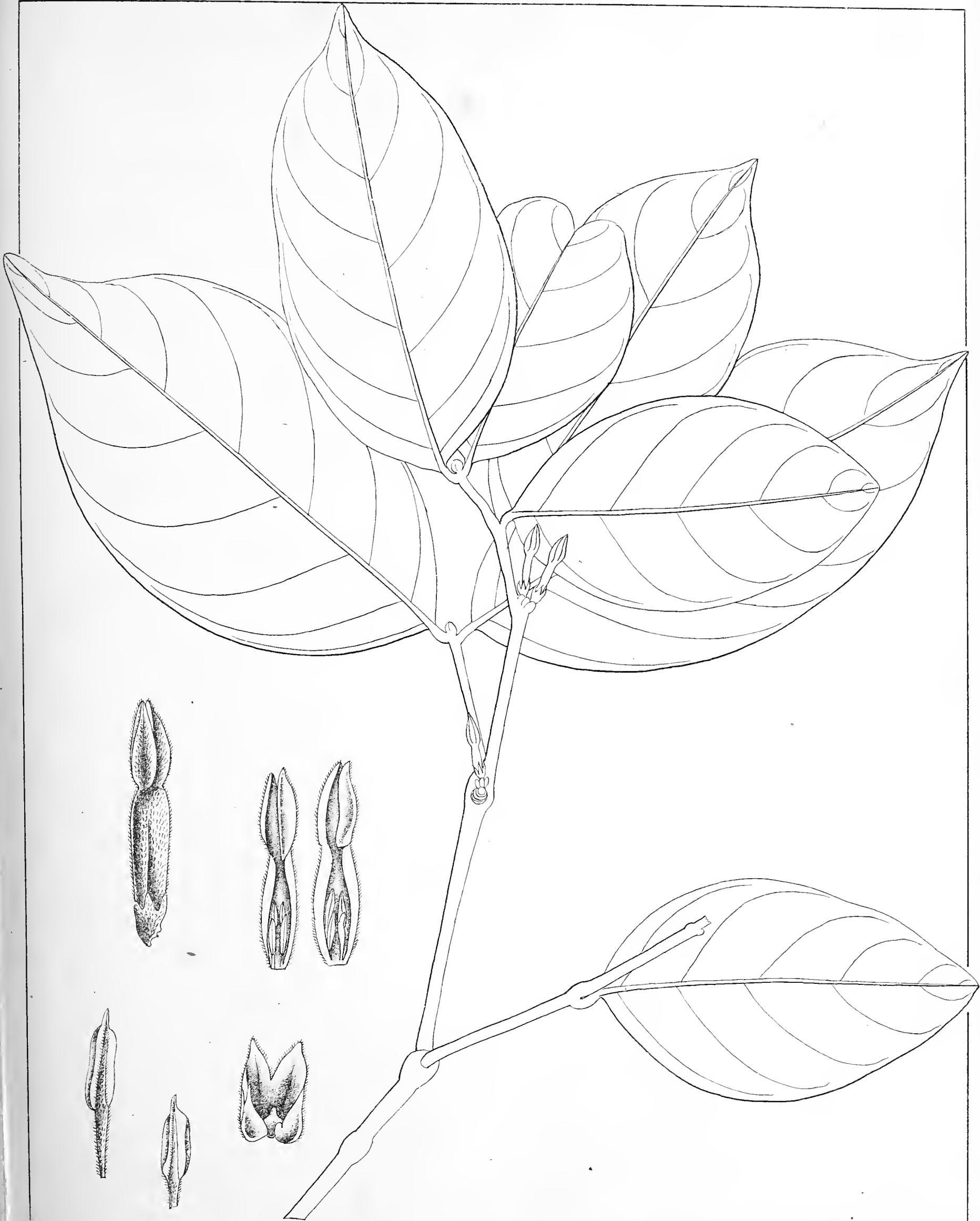
Govindoo, del.

*Diospyros insignis* (Thunb.)

Dumphy, sculp.





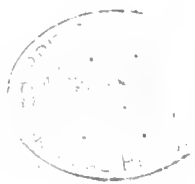


Alvris, del.

*Diospyros oppositifolia* (Shw.)

Dumphy, Lith.



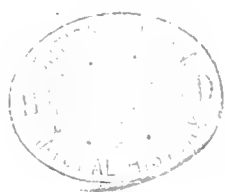




Alms, del.

*Diospyros Gardneri* (Shu.)

Dumphy, Lith.

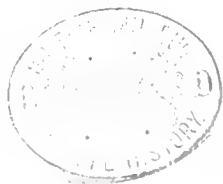




Alwis, del.

*Diospyros microphylla* (Bedd.)

Dunphy, Lith.





Govindoo, del.

*Diospyros Canariensis* (Bedd.)

Dumphy Lith.







Govindoo, del

*Diospyros Thwaitesii* (Bedd.)

Thompson, sculp.



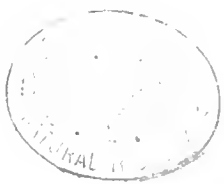


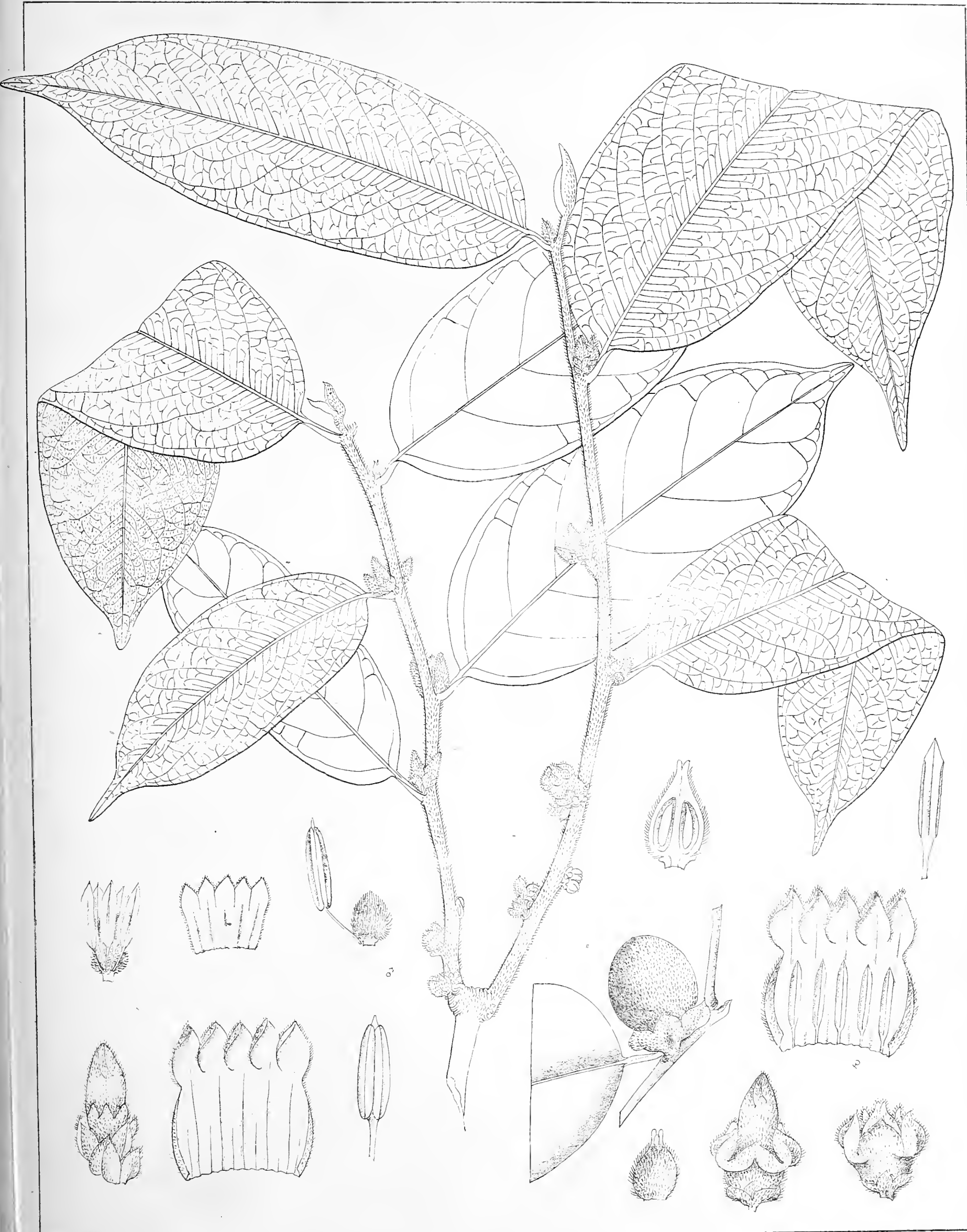


*Gevinda. det.*

*Diospyros Nelagiuca Bodd.*

— 111 — 26





Greville, del.

*Diospyros hirsuta* (Linn.)

Dumphy, lith.





Alvis, del.

*Diospyros Moonii* (Thunb.)

Dumphy Lith.











Floris, del.

*Impatiens parviflora*, Wedd.

Summery Lith.



**IMPATIENS VIRIDIFLORA.** (Wight.) Parasitic on trees, glabrous, stems very thick (often 1 inch in diameter) fleshy erect, leaves rather succulent alternate and crowded towards the apex of the branches lanceolate to ovate or obovate acute at the apex and always more or less attenuated at the base, crenate with the crenatures furnished with incurved weak bristles,  $2\frac{1}{2}$ - $3\frac{1}{2}$  inches long, by  $1-1\frac{1}{4}$  broad, petioles  $\frac{1}{4}$ - $\frac{1}{2}$  inch long, peduncle axillary 2 (rarely only 1) flowered,  $\frac{1}{4}$ - $\frac{1}{2}$  inch long, bracteole at its apex, pedicels elongate  $1-1\frac{1}{4}$  inches long, flowers green, upper sepals (vexillum) vaulted and crowned with a very large erect foliaceous crest, lateral sepals subulate reflexed, 2 combined lateral petals (aloe) thick fleshy the upper smaller and quite hid under the vexillum, spur (labellum) large with a revolute point, capsule glabrous. *Wight in Mad. Journ. of Lit.* v. p. 9.

I have only found this curious parasitic species on trees at the top of the Sivagherry ghat (5,000 feet) where it is abundant ; it is now in cultivation in gardens and grows well in lumps of brick and charcoal ; it is more curious than beautiful. It is nearly allied to *Imp. parasitica*, but the aloe are differently shaped and scarcely at all hid in the labellum, whereas in *parasitica* the lower lobe is quite hid in it ; the flowers of this are perfectly green.

## PLATE No. CXLI.

**IMPATIENS PARVIFOLIA.** (Bedd.) Herbaceous sub-erect, branched, glabrous, leaves alternate or subopposite minute ovate deeply serrated, furnished with a few hairs or glabrous 3-7 lines long by  $1\frac{1}{2}$ -3 lines broad, peduncles axillary solitary 5-6 times longer than the leaves, umbellately or subracemosely flowered towards the apex, vexillum small and slightly vaulted over the staminal crown, lateral sepals small and pointed upwards, aloe with the upper lobe small, the lower one large and spreading pale pink with a bright crimson blotch on the upper lobe and a similar mark on the vexillum which is also pinkish, labellum greenish, boat-shaped with a small obtuse spur, seeds several hairy, flowers 5-6 lines long.

Anamallays, covering rocks during the monsoon on the summit of the Akka mountain, 8000-8600 feet elevation.

## PLATE No. CXLII.

**IMPATIENS TRAVANCORICA.** (Bedd.) Herbaceous 6-8 inches in height not branched, stems glabrous, leaves crowded towards the apex, ovate or sometimes obovate, bristly crenate, the margin at the base of the leaf being furnished with 1-2 very long weak setae, similar hairs or setae being sparingly scattered over the upper surface of the lamina,  $1-1\frac{1}{2}$  inches long by 7-10 lines broad ; petioles  $1\frac{1}{4}$ - $1\frac{3}{4}$  inches long, peduncles axillary, about the apex of the branches about as long or a little longer than the petioles umbellately flowered at the apex, flowers white 6-8 lines long very delicate in texture, vexillum vaulted, lateral sepals rather large obliquely ovate 3 nerved, aloe with the upper lobe small, the lower large and spreading, labellum boat-shaped with a short (sometimes obsolete) conical blunt spur.

Travancore hills, Myhendra and Aghasteer at 4-5000 feet elevation.

## PLATE CXLIII.

**IMPATIENS SCABRIUSCULA.** (Heyne.) Erect, branched, tomentose, leaves alternate, linear-lanceolate acute at the apex and much attenuated at the base cuspidate-serrated, upper side slightly, under side rather densely pubescent with weak pellucid jointed hairs, 2-3 inches long by 4-6 lines broad, petioles 2-6 lines long, peduncles aggregated or rarely solitary in the axils much shorter than the leaves, pubescent, vexillum pubescent with a crest, lateral sepals very small, lower lobe of the aloe large and spreading, labellum boat-shaped pubescent spurless or produced into a long filiform spur. *Heyne in Roxb. Fl. Ind. (ed Wall.)* 2. p. 464.

Var $\gamma$ .  $\alpha$  spurless.

Var $\gamma$ .  $\beta$ , labellum produced into a long spur.

Var $\gamma$ .  $\alpha$  is very common in Wynad and is the plant figured. Var $\gamma$ .  $\beta$  I have only found in Coorg ; it differs in no way except in the labellum being prolonged into a long filiform spur.

## PLATE CXLIV.

**IMPATIENS ELEGANS.** (Bedd.) Herbaceous, erect often throwing out roots from the joints, somewhat branched, leaves alternate ovate acuminate, crenate with incurved bristles, above with a few hairs on the veins, beneath pale glabrous, 3-4 inches long by about  $1\frac{1}{2}$  broad, petioles  $1\frac{1}{2}$ -2 inches long, peduncles axillary solitary from shorter to a little longer than the petioles, 3-5 flowered towards the apex (umbellately or sub-racemosely), and there furnished with ovato-lanceolate acuminate bracteoles, vexillum broad ovate flat with a green ridge at its back, lateral sepals small ovate with a green ridge ending in a point, upper lobe of the aloe very small rather square and inflexed over the staminal crown, lower lobe large and spreading, labellum small boat-shaped without a spur, flowers pale rosy white with a purple eye, capsule glabrous, seeds hairy.

Common on the Anamallays from 2,500 to 4,500 feet elevation ; the flowers are very much larger at the higher elevations. Except in the absence of a spur it is much like *Imp. cordata*, *Wight*, but is a more delicate plant. Dr. Hooker unites *cordata* of *Wight* with *viscida*, but they are quite distinct.

## PLATE CXLV.

**IMPATIENS WIGHTIANA.** (Bedd.) Suffruticose erect branched, leaves alternate glabrous, lineolate, narrow-lanceolate acuminate, incurved-bristly-serrate, a few hairs on the nerves above, glabrous below 5-6 inches long by  $1\frac{1}{4}$ - $1\frac{3}{4}$  broad, petioles  $1\frac{1}{2}$ - $2\frac{1}{2}$  inches long furnished with numerous pedicelled glands towards the apex, peduncles axillary solitary a little longer than the petioles, racemed nearly their whole length, flowers 12-14 lines long white with vexillum and alæ mottled with pink, vexillum with a green ridge at its back, lateral sepals small, labellum ventricose with a short incurved spur, alæ with the upper lobe very small, lower lobe much elongated and narrow, bracteoles small ovate, pedicels in fruit horizontal, fruit with about 5 seeds, seeds hairy.

Anamallays, moist forests 3000-4500 feet elevation.

PLATE CXLVI.

**IMPATIENS TANGACHEE.** (Bedd.) Herbaceous sub-procumbent, glabrous, leaves alternate subverticelled acuminate bristly-serrate  $2\frac{1}{2}$ -4 inches long, by  $\frac{1}{2}$ - $\frac{3}{4}$  inch broad, petioles scarcely any beyond the dilated base of the leaf, peduncles axillary much longer than the leaves 4-8 flowered towards the apex, bractes large boat-shaped persistent, pedicels erect in flower, slightly reflexed in fruit, flowers 12-14 lines in length, bright rose, vexillum large vaulted, ovate, lateral sepals ovate pointed, labellum with a long tapering recurved spur, alæ large and spreading, the upper lobe about  $\frac{1}{2}$  the size of the lower, capsule glabrous gibbous, seeds numerous very small.

Anamallays, 4000 feet and upwards, most abundant on the higher ranges in beds of rivers; a very beautiful species.

PLATE CXLVII.

**IMPATIENS PHENICEA.** (Bedd.) Suffruticose erect glabrous, leaves deep green and shining, lanceolate attenuated at both ends, incurved bristly-serrate, 3-4 inches long by  $1-1\frac{1}{2}$  broad, petioles 4-8 lines long, peduncles axillary as long or longer than the leaves, racemose or occasionally dichotomously branched towards the apex and furnished with cordate boat-shaped permanent bractes at the base of the pedicels, flowers brilliant scarlet with a little yellow in the centre about 1 inch long, 4-14 to each peduncle, pedicels slender  $\frac{3}{4}$  inch long, vexillum vaulted winged at its back, alæ spreading, the lower lobe about twice as large as the upper, lateral sepals small, labellum gradually attenuated into a long recurved spur which is swollen and gland like at its point.

Pulney Hills, sholas on the higher ranges, 6-7000 feet, (abundant in the Kodinkarnal Shola). This very beautiful species is very similar to the *Imp. Walkeræ* of Ceylon; it is only found on the Pulneys; it is easy of cultivation from cuttings, and well worth a place in gardens.

PLATE CXLVIII.

**IMPATIENS LIGULATA.** (Bedd.) Herbaceous, much branched, glabrous, leaves opposite linear-lanceolate mucronate at the apex, sessile, more or less cordate and stem-clasping at the base, remotely bristle-toothed, above furnished with very minute harsh pubescence below glabrous and glaucous, 3-4 inches long by 6-8 lines broad, petioles none or 1 line long, peduncles 1-3 axillary 1 flowered about  $\frac{1}{2}$  the length of the leaves minutely pubescent, flowers about 1 inch long pink or rarely white, lateral sepals small linear lanceolate acute, vexillum small vaulted slightly pubescent along the centre of the back, alæ with a long filiform inner lobe which is completely hid in the spur, lower lobe large and spreading, labellum with a longish recurved gibbous spur, capsule swollen in the centre glabrous with about 12 black shining seeds.

This pretty species is rare; I have only observed it in the Anamallay Teak forests (about Toonacadavu) elevation 1500-2500 feet, and in one locality in Malabar at a somewhat lower level; it is allied to some forms of *I. Chinensis*; it is easily propagated from seed.

PLATE CXLIX.

**IMPATIENS ANAMALLAYENSIS.** (Bedd.) Herbaceous, erect, often with small branches from the axils of the lower leaves, leaves opposite (those of the branchlets alternate) ovate, incurved-bristly-serrate above with a few distant hairs, below glabrous and pale,  $1\frac{1}{2}$ -2 inches long by 8-14 lines broad, petioles up to one inch long, peduncles filiform axillary from nearly as long to much longer than the leaves, racemosely 3-8 flowered towards the apex, pedicels very slender 3-5 lines long furnished with filiform bracteoles at their base, flowers pinkish 3-4 lines in length, alæ elongate, upper lobe with a ligulate appendage which is hid in the labellum, lower lobe 2 lobed, labellum with a short nearly straight gibbous spur capsule ovate pointed glabrous, seeds 6-8 very hairy. Anamallays and Pulneys, 3-7000 feet.

PLATE CL.

**IMPATIENS DENISONII.** (Bedd.) Scapigerous, leaves radical ovate cordate acute or obtuse at the apex, bristly-crenate furnished above with numerous weak hairs, glabrous below, 4-6 inches long by 3-4 inches broad, petioles generally a little shorter than the leaves, scapes twice to four times as long as the leaves, flowers numerous racemed towards the apex, pink, about 1 inch long, pedicels 12-16 lines long furnished with a small ovate bracteole at their base, lateral sepals small ovate, vexillum rather large broadly ovate vaulted, alæ with a dense tuft of petaloid hairs across the upper portion of the inner face, lower lobe deeply bifid (as in *rivalis*), upper lobe furnished with a long filiform appendage which is entirely hid in the whole length of the spur, labellum with a long recurved spur, capsule glabrous, seeds very small numerous.

This very delicate and beautiful species is very abundant on the Sisparah ghat (Nilgiris), 4-5000 feet elevation, on rocks and trunks of trees. I have never met with it elsewhere. Dr. Hooker considers it a variety of *rivalis*, but I do not think any one who saw the 2 plants growing would consider them varieties of the same species; *rivalis* has very much larger flowers, and never has the long filiform appendage always present in this. Some botanists are inclined to unite *rivalis* with *acaulis*, but they could never be confounded except in dried examples, *acaulis* has the lower lobe of the *aloe* entire, and in *rivalis* it is always deeply bifid.

## PLATE CLI.

**IMPATIENS ORCHIOIDES.** (Bedd.) Scapigerous, leaves radical, orbicular to ovate with a deep cordate base, obtuse at the apex bristly crenate, furnished above with numerous weak hairs, below nearly glabrous, about 2 inches each way, petioles 3-5 inches long, scapes about 6-7 inches long, racemosely 6-10 flowered towards the apex, flowers reddish-brown 10 lines long, pedicels 6-8 lines long, bracteoles ovate, lateral sepals small ovate, vexillum ovate, *aloe* entire above, below produced into 2 long linear lobes, labellum ovate saccate without a spur, capsule glabrous, seeds numerous brown minutely scrobiculate.

This very curious delicate species I have only observed on the Koondahs, growing on trunks of trees in sholas near the head of the Avalanche ghat (in flower in September); its flowers much resemble some species of *Liparis*.

## PLATE CLII.

**IMPATIENS GRANDIS.** (Heyne.) Perennial, erect tall shrubby with thick fleshy branches perfectly glabrous, leaves glabrous oval to ovate acuminate, incurved-bristly-crenate, 5-6 inches long by 3 broad, petioles 2-5 inches long furnished with 2 stipitate glands a little above the middle, peduncles axillary erect 4-6 inches long, flowers 2-6 umbellate on 1-2 inches long pedicels, flowers 2-3 inches long by 2 inches across white flaked with crimson, lateral sepals oval to lanceolate, vexillum broad ovate, *aloe* with the lower lobe twice as large as the upper one, labellum very variable sometimes produced into a long tapering straight or recurved spur sometimes only a deep oblong rounded bag. *Heyne in Wall. Cat.* 4759. *Impatiens Hookeriana*, *Arnt*.

This very fine species is very common in South Tinnevely, 1-4000 feet, and is also abundant in Ceylon; it is easily propagated by cuttings.

## PLATE. CLIII.

In a paper on this genus which I published in the Mad. Lit. Society's Journal, I described 2 species under the names of *I. crenata* and *I. Akka*; they are both varieties of one species, but I have not specimens at hand to figure. It is a very pretty species of the Scapigeræ group (and is perhaps not distinct from *I. Stocksii*, H. f. et T. from Canara, which I have not seen); it covers rocks on the Akka mountain and other localities on the Anamallays at 7000-8000 feet, but I have seen it nowhere else.

The Scapigeræ group is well marked, and to it belong *I. modesta*, *Wight*. (= *tenuis*, *Bedd. Mad. Journ.*); *I. scapiflora*, *Heyne*; *I. acaulis*, *Arnt*. (= *gracilis*, *Bedd. Mad. Journ.*); *I. rivalis*, *Wight* (of which *verrucosa*, *Bedd.*, is only a variety) quite distinct as a species from *acaulis*. *I. Denisonii*, *Bedd.*, and *I. orchioides*, *Bedd.* The last two named I have only seen on the Koondahs (Nilgiris West,) but the others are pretty general throughout our western forests.

The epiphytic group is also a well marked section: it contains *Jerdonii*, *auriculata* and *viridiflora* of *Wight*, and *parasitica*, *Bedd.*; they are all epiphytic on the trunks and boughs of trees, and have short fleshy stems often 2 inches in diameter. *Jerdonii*, a most lovely species, is found on trees on the banks of the river just below the coffee estate on the Sisparah ghat, elevation 3-4000 feet on the top of the Bramagherries, 5000, and on the Palghat hills; it is not found south of the Palghat gap; *auriculata* and *viridiflora* are only found on the mountains in Tinnevely and Travancore; the former is very abundant on the Attraymally and other localities, 5000 feet and upwards; the latter I have only seen on the top of the Sevagherry ghat, 5000 feet; *parasitica* is restricted to the Anamallays, but is most abundant there all over the higher ranges and occasionally as low down as 4000 or 3500 feet.

It is not easy to class the other species in well marked groups, as some species have both opposite and alternate leaves, and their flowers racemed or umbellate on the same plant. Some species are very local, and others widely dispersed. The following list may guide collectors of these interesting plants.

\* *Leaves opposite, or verticelled peduncles 1 flowered*, (in *latifolia*, *Leschenaultia*, and *lucida*, leaves often alternate.)

*I. CHINENSIS*, *L.* (= *I. fasciculata*, *WA.*; *I. heterophylla*, *Wall.*)—Common, plains up to 8000 feet, very variable.

*I. OPPOSITIFOLIA*, *L.* (= *I. rosmarinifolia*, *Retz.*)—Common 3-5000 feet.

*I. GARDNERIANA*, *W.*—Sispara ghat, and Wynad, only 3-4000 feet.

*I. RUFESCENS*, *Benth.*—Common 4-7000 feet.

*I. TOMENTOSA*, *Heyne* (= *ramosissima*, *Dalz.*)—Common, 3-7000 feet.

*I. DIVERSIFOLIA*, *Wall.*—Malabar (unknown to me).

*I. LAWII*, *H. f. et T.*—Malabar, Canara, and Concan, 3-4000 feet.

*I. INCONSPICUA*, *WA.* (= *I. filiformis*, *WA.*; *I. pusilla*, *Heyne*).—Common, 3-8000 feet, very variable.



- I. KLEINII, *WA.*—Common, plains up to 4000 feet.  
 I. SETOSA, *H. f. et T.*—Sispara ghat, Nilgiris only, 3-4000 feet.  
 I. TENELLA, *Heyne.*—Malabar (unknown to me).  
 I. DALZELLII, *H. f. et T.*—Concan.  
 I. LATIFOLIA, *L.* (= *cuspidata*, *WA.*; *floribunda*, *Wight*; *flaccida*, *Arnt.*; *bipartita*, *Arn.*)—Common 3-7000 feet.  
 I. LESCHENAULTII, *Wall.* (= *leptopoda*, *brevicornu*, and *gibbosa*, *Arnt.*)—Common, 3-7000 feet.  
 I. LUCIDA, *Heyne.* (= *latifolia*, *WA.*)—Common, 4-7000 feet.  
 I. LIGULATA, *Bedd.*—Anamallays, and Malabar plains up to 2500 feet.

\* \* *Leaves opposite, or verticelled peduncles 2 many flowered.*

- I. VERTICELLATA, *Wight.*—Anamallays, Palghat hills, Tinnevely and Travancore, 2000-4500 feet.  
 I. ANAMALLAYENSIS, *Bedd.*—Anamallay and Pulneys, 3-7000 feet.

Anamallayensis has alternate leaves on its branchlets; Goughii belongs as much to this section as to the one it is placed under

\* \* \* *Leaves alternate, peduncles 1 flowered.*

- I. BALSAMINA, *L.* (= *arcuata*, *Wall.*)—Common plains up to 4000 feet.  
 I. SCABRIUSCULA, *Heyne.*—Wynad and Coorg, 2-4000 feet.  
 I. MUNRONII, *Wight* (white and red flowering varieties).—Nilgiris West only, 5-7000 feet.  
 I. DASYSPERMA, *Wight.*—Common, plains up to 3000 feet.  
 I. PULCHERRIMA, *Dalz.*—Concan.  
 I. HENSLOWIANA, *Arnt.* (= *albida*, *Wight.*)—Common, 3-7000 feet.

\* \* \* \* *Leaves alternate, peduncles 2 many flowered; (in Goughii leaves sometimes opposite.)*

- I. GOUGHII, *Wight.* (= *viscosa*, *Bedd.*)—Nilgiris and Anamallays, not common, 3-7000 feet.  
 I. FRUTICOSA, *DC.*—Common, 4-6000 feet.  
 I. VISCIDA, *Wight.*—Pulney hills, higher ranges only, in beds of rivers.  
 I. ELEGANS, *Bedd.*—Anamallays only, 2-5000 feet.  
 I. CORDATA, *Wight.*—Anamallays, and all the hills south of them, 3-5000 feet.  
 I. GRANDIS, *Heyne.* (= *Hookeriana*, *Arnt.*)—Tinnevely and Travancore 1-4000 feet.  
 I. CAMPANULATA, *Wight.*—Common, 4-7000 feet.  
 I. MYSORENSIS, *Heyne.*—Not known to me. } Mysore.  
 I. PENDULA, *Heyne.*—Not known to me. }  
 I. PARVIFOLIA, *Bedd.*—Anamallays only, 7-8000 feet.  
 I. MACULATA, *Wight.*—Common, 4-7000 feet.  
 I. PHENICEA, *Bedd.*—Pulney hills only, 6-7000 feet.  
 I. UNCINATA, *Wight.*—Tinnevely only, abundant in the vicinity of Courtallum, 2-3000 feet.  
 I. UMBELLATA, *Wight.*—Tinnevely only, abundant in the vicinity of Courtallum, 2-3000 feet.  
 I. TANGACHEE, *Bedd.*—Anamallays only, 4-7000 feet.  
 I. WIGHTIANA, *Bedd.*—Anamallays only, 3-5000 feet.  
 I. TRAVANCORICA, *Bedd.*—Travancore hills only, 3-5000 feet.

The epiphytic species are very beautiful plants for cultivation, and their succulent stems keep alive for weeks packed in dried moss; they are most readily propagated, the smallest cutting put into small lumps of brick and charcoal rooting most readily. The larger species, such as *Henslowiana*, *campanulata*, *grandis*, *phœnicea*, &c. are readily raised from cuttings, and the stems retain their vitality for some time, and can be carried about for ten or twenty days in damp moss; the more delicate species are very difficult to raise as they will scarcely ever germinate from seed. I have most constantly tried to grow all these from seed, but have failed in almost every case. I have however succeeded well with *ligulata*, *scapiflora* and *parvifolia*. The *Scapigeræ* section are easily grown from their tuberous roots, and are well worth cultivating. Dr. Wight figures almost all the species not figured in this work.

The following S. Indian species are also common to Ceylon.

*Impatiens oppositifolia*, *balsamina*, *latifolia*, *Henslowiana*, *Leschenaultii*, *grandis*, and *acaulis*.

The following species are peculiar to Ceylon, and I hope shortly to figure some of them.

*Leaves alternate, peduncles 1 flowered.*

- I. *truncata*, *Thw.*; *macrophylla*, *Gardn.*; *glandulifera*, *Arnt.*; *repens*, *Moon.*

*Leaves alternate, peduncles several flowered.*

- I. *Walkerii*, *Hook.*; *elongata*, *Arnt.*; *subcordata*, *Arnt.*; *cornigera*, *Arnt.*; *Arnottii*, *Thw.*; *linearis*, *Arnt.*; *appendiculata*, *Arnt.*,  
*leucantha*, *Thw.*; *janthina*, *Thw.*

## GENTIANACEÆ.

**EXACUM ANAMALLAYANUM.** (Bedd.) Perennial, shrubby 2-3 feet high, stems very woody at the base, terete more or less angled when young, leaves very thick and coriaceous from broad lanceolate to broad ovate 3-5 nerved stem clasping, slightly acute at the apex, 2-2½ inches long by 1-1½ broad, flowers intensely deep blue, 1½ to 2 inches in expansion, peduncles crowded at the apex of the branches and from the upper axils, sepals acuminate, petals acute or mucronate.

Anamallays and Pulney mountains, 6-7000 feet elevation. This is by far the most lovely species of the genus, its foliage is very beautiful, and its flowers are of the deepest ultramarine. I always looked upon it as a form of the Ceylon *E. macranthum* until I saw that species growing; it is however very distinct, the leaves are very thick, leathery and opaque.

## PLATE CLIV.

*Exacum atropurpureum* (Pl. cxix of this work) was drawn from a specimen collected on the Travancore hills (4500 feet elevation). I have lately found it on the mountains near Palghat at nearly 7000 feet. *Exacum Wightianum* (Wight's Icones, 840) I have lately found in high grass on the Shevaroy (elevation 4500 feet). It is a superb species, but perhaps only a very luxuriant variety of bicolor, bicolor and tetragonum are scarcely distinct; and *E. Zeylanicum*, *macranthum*, *Walkeri* and *Perrottettii* are I believe all forms of one species. *E. Courtallense* is very closely allied to *Perrottettii*, but is more membranaceous, and I have a species in my Herbarium from the Travancore hills (4000 feet) which I at first thought new, but now look upon as only a very luxuriant form of *Courtallense*, it has its leaves very much broader, and the flowers 2½ inches across.

The very caespitose fleshy leaved *E. Travancoricum* (Pl. cxvii of this work) is a most distinct species, and one of the most beautiful plants in this Presidency; it is abundant on the Attraymallay in Travancore.

## COMBRETACEÆ.

**QUISQUALIS MALABARICA.** (Bedd.) A very large climber, young stems very minutely puberulous, leaves opposite elliptic, oblong more or less acuminate very minutely puberulous on the costa and veins, otherwise glabrous penniveined quite entire 3-6 inches long by 1-2¼ broad, petioles 4-8 lines long slightly puberulous, jointed near the base, leaving a permanent hard base after the fall of the leaf, which become large hooked blunt topped spines (on the older branches) racemes terminal 1½-1¾ inches long; minutely silky pubescent, bracts narrow linear 2 lines long, flowers deep pink 1 inch long (on pedicels 3 lines in length), calyx and corol silky on the outside, petals linear lanceolate acute, style adglutinate to the calyx tube, not reaching the lower stamens, stamens all included, the upper 5 opposite the segments of the calyx, the lower ones opposite the petals, ovary hairy 1 celled with 3 pendulous ovules; fruit not seen.

A very large creeper, Carcoor ghat, Wynad, elevation about 1500 feet.

## PLATE CLV.

## MELASTOMACEÆ.

**SONERILA TRAVANCORICA.** (Bedd.) Perennial suffruticose, erect, branches terete sometimes marked with a decurrent rib from the insertion of the leaves, densely villous, leaves opposite ovate to elliptic, acute at the apex, quite entire or inconspicuously crenate near the apex, densely villous on both sides (especially so on the mid rib and veins beneath) with adpressed long tawny hairs, 2½-3½ inches long by 1¼-1¾ broad, petioles densely villous, ½ to 1½ inches long, peduncles terminal about 1 inch long subumbelliform 5-6 flowered, pedicels short at first recurved, erect in fruit, peduncles pedicels and calyx hirsute with gland tipped hairs, calyx prominently nerved, petals obovate to sub-rotund often mucronulate furnished with a line of gland tipped hairs down the centre of the back, anthers deeply sagittate at the base recurved and attenuated into a long point at the apex, style longer than the filaments, capsule ribbed and covered with gland tipped hairs, flowers pink about 1¼ inches across.

Travancore mountains (Attraymallay), 3500-5000 feet. A very beautiful species, somewhat resembling the much more membranaceous *versicolor*, which however is annual; this besides is far more densely pubescent and the venation of the leaves is different.

## PLATE CLVI.

**MEDINILLA MALABARICA.** (Bedd.) Epiphytic glabrous subscandent, copiously rooting, branches warty, leaves very fleshy opposite lanceolate 3 nerved, the lateral nerves springing from the costa a little above the base, costa and nerves very prominent beneath, occasionally the leaves are sub 5 nerved, the outer nerves being thin and near the margin, entire or inconspicuously crenate undulate near the apex, scarcely acute at the apex, glabrous, 3-3½ inches long by 1½ broad, petioles 4-7 lines long, peduncles quite glabrous generally several together in the axils 2 lines to ¾ inch long, 3-5 flowered, furnished with 2 minute bractes at the apex, lateral pedicels 10 lines long jointed and bracteole at the middle occasionally 2 flowered, terminal one not jointed, calyx-tube turbinate quite entire or with 4-8 most minute teeth, petals 4 fleshy oblong with a cultriform apex much imbricate, stamens 8, equal inserted round the apex of the stamen tube (which lines the calyx) inflexed in the bud, filament with 2 glandular swellings at its apex on the inside, anthers



opening by a terminal pore, connective at the back produced into a short blunt spur, ovary somewhat 8 lobed deeply sunk in the calyx tube, its apex on a level with the insertion of the stamens and its sides joined to the disk or staminal tube by 8 partitions, naked at its apex or crowned round the base of the style with 8 deciduous small filiform processes, ovules numerous in each cell attached to the central placentas, fruit turbinate indehiscent succulent crowned with the calyx-limb and quite enclosed except its apex in the disk and calyx, the cells becoming somewhat obsolete, seed obovoid, testa hard smooth, the flowers, peduncles, pedicels, petioles and base of the lamina are all of a brilliant crimson, the base of the lamina is often produced into 2 minute gland-like points at the apex of the petiole.

This beautiful epiphyte is most abundant on the Anamallays, chiefly on the higher ranges where it quite covers trees, but also at lower elevations down to 3500 feet. I have also observed it on the western slopes of the Nilgiris (banks of the river just below Walaghat) 4000 feet elevation; it is in flower all the year round.

#### Analysis.

1. A bud, petals removed, showing the inflexed stamens. 2, 3, 4. Front side and back view of an anther. 5. Vertical section of a flower, showing the position of the stamens and the walls or partitions connecting the ovary with the calyx. 6. Transverse section of the ovary near its apex, showing its 4 cells and the 8 cavities formed round it by the 8 connecting partitions. 7. Transverse section of the ovary near its centre. 8. A seed and the embryo. 9. View of the upper side of the leaf, the wart like dots are only visible when the leaf begins to dry, the quite fresh leaf is fleshy and perfectly smooth. 10. Underneath view of a leaf.

Another species of *Medinilla* (the *Triplectrum radicans* of Wight and Arnot's *Prod.*) with exceedingly thick nearly round leaves, is a most common epiphyte in all our western moist forests up to 4000 feet, perfectly covering trees in Wynad, Coorg, Anamallays, Tinnevely, &c. I have constantly met with it at different seasons during the last fifteen years, but never yet saw it in flower or fruit; it probably flowers in April and May, when I am seldom in the forests, but I have occasionally seen it even in those months.

#### PLATE CLVII.

#### ANONACEÆ.

**UNONA VIRIDIFLORA.** (Bedd.) A gigantic climber, young parts densely aureo-pubescent, branches at length glabrous but warty, leaves membranaceous whitish beneath ovate lanceolate rounded or somewhat cordate at the base, gradually attenuated into a long point at the apex, at length glabrous above, adpressedly pubescent beneath, 3-5 inches long by about  $1\frac{1}{2}$  broad, petioles 3-4 lines long, peduncles pubescent 1 flowered axillary or supra axillary furnished with a large broad cordate deciduous bract about their middle, 1-2 inches long, flowers bright green  $2\frac{1}{2}$ -3 inches long, sepals quite free at the base membranaceous nerved broad ovate subcordate at the base 8 lines long by 6 broad, outer petals  $2\frac{1}{2}$ -3 inches long by 6-9 lines broad, inner petals a little shorter and narrower, all membranaceous nerved reticulated and silky pubescent.

This very fine species has only been observed on the banks of the Sholayar (3000 feet elevation), in the dense moist forests in the heart of the Anamallays in flower in March.

#### PLATE CLVIII.

#### LABIATÆ.

**POGOSTEMON TRAVANCORICUM.** (Bedd.) Stems erect ascending to 2 feet or more obtusely angled, leaves membranaceous ovate acute, coarsely crenated, the crenatures again serrated above furnished with a few weak hairs at length glabrous about 3 inches long by 2 broad, petioles  $1\frac{1}{2}$ - $2\frac{1}{2}$  inches long, flowers in dense terminal racemes which are  $2\frac{1}{2}$ - $3\frac{1}{2}$  inches in length, petioles 2 lines in length furnished with filiform bracteoles at their insertion on to the raceme, calyx glabrous, corol villous towards the apex on the outside  $\frac{1}{2}$  an inch in length, the upper lip of 3 rounded lobes, the lower lip acute; stamens filiform hairy at the base exerted to 6-8 lines beyond the corol, style a little longer than the stamens, stigma of 2 filiform lobes.

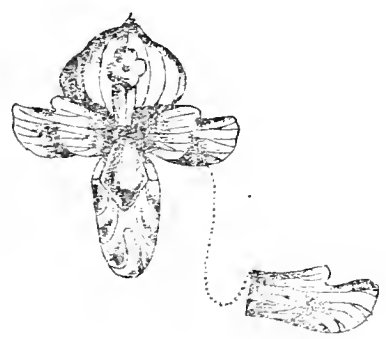
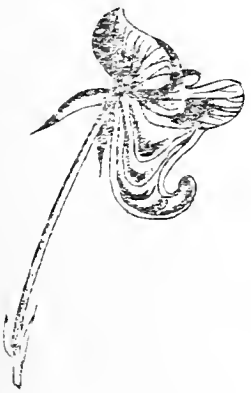
On the Attraymallay ghat, Travancore, 4000 feet elevation.

#### PLATE CLIX.

**CASEARIA WYNADENSIS.** (Bedd.) A small tree, young parts densely aureo-villous, branches softly pubescent, stipules small linear deciduous membranaceous penniveined, lanceolate, with a long acumination at the apex, or sometimes only acute or obtusely rounded, rather sharply serrated except near the base at length glabrous above except the costa, softly pubescent beneath especially on the costa and main veins, pellucidly punctate and lincolate  $4\frac{1}{2}$ -6 inches long by  $1\frac{1}{2}$ -2 broad, petioles softly pubescent 4-6 lines long; flowers small, 6-8 fascicled in the axils, pedicels 2-3 lines long, pubescent, calyx pubescent on the outside, very slightly hairy within ciliate punctate, 5-lobed, stamens 8, rarely only 6, staminodes very hairy, ovary oblong attenuated into a style equalling the stamens in length, both hairy, stigma 4 lobed.

A small tree, very common on the slopes of the Wynad, 2-3,000 feet elevation.

#### PLATE CLX.





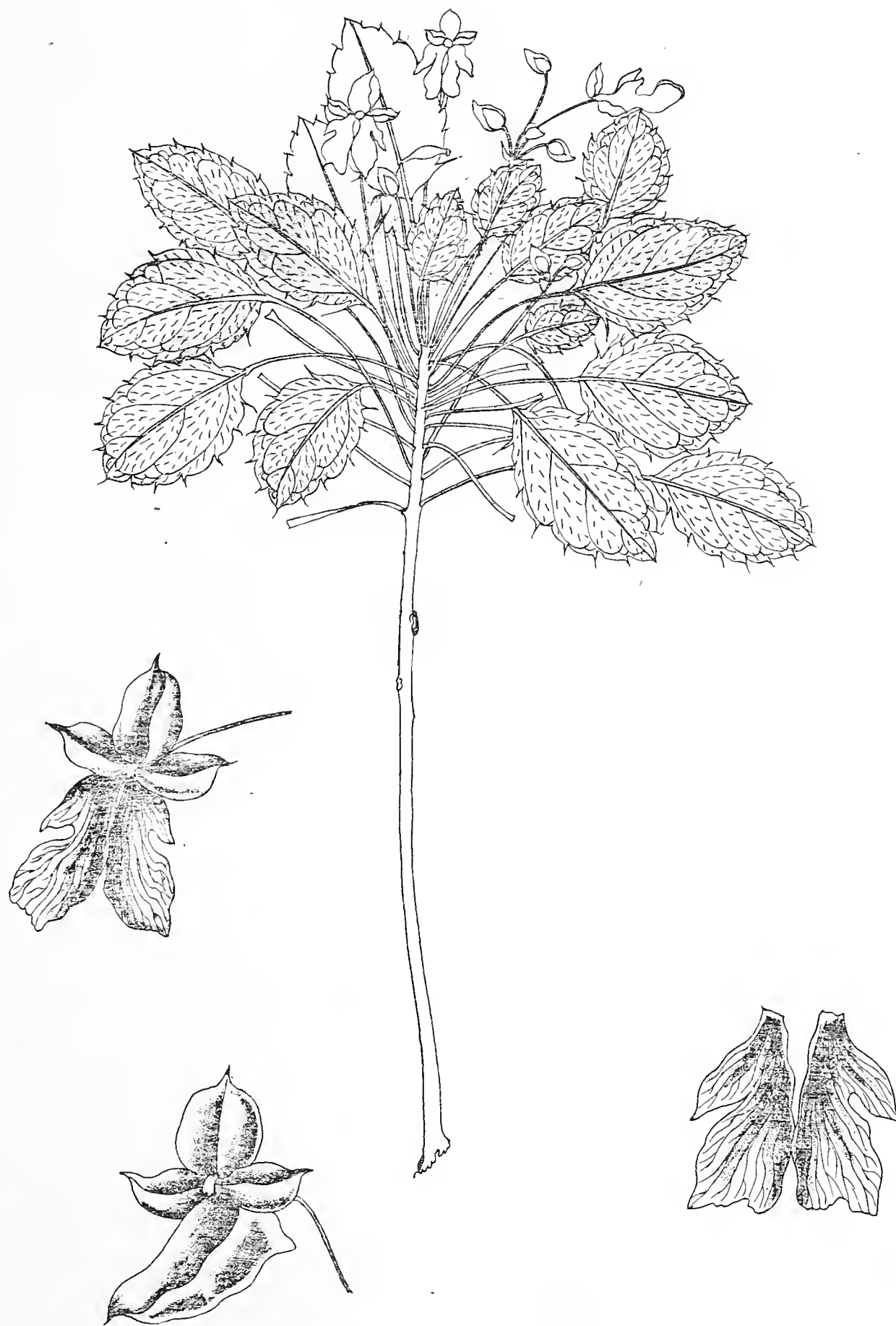


Covindoo, det.

*Impatiens parvifolia*, (Beetz.)

Dumpley, Lith.















Cornéjo, del.

*Impatiens elegans.* / Benth

Dumphy, del.













Gerrardoo. del.

*Impatiens phoenicea*, Bedr.

Dumphy. Lith.







Covindoo, del.

*Impatiens ligulata* (Bedd.)

Dunphy, sculp.









Gouindoo, del.

Dumphy Lib.

*Impatiens Denisonii* (Bedd.)





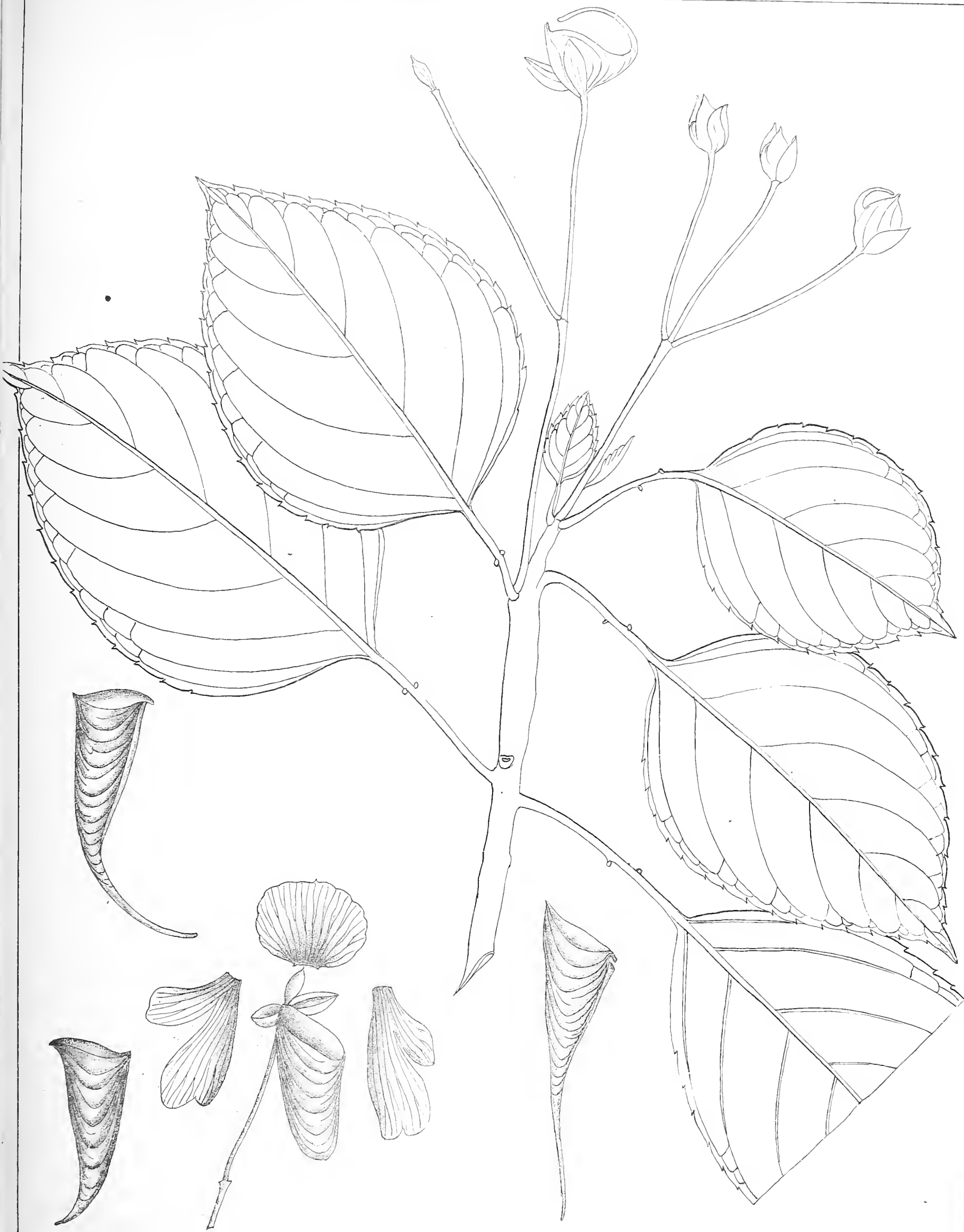
Coville, det.

*Impatiens orchicoides*, L. Poda.

Dumortier, det.







Covindoo del.

*Impatiens grandis* (Hegn.)

Dumortier Lith.





Scutellaria, L.

*Scutellaria multiflora* Boiss.

Scutellaria, L.





Govindoo. del.

*Quisqualis Malabarica* Bead.

Dumphy, Lith.





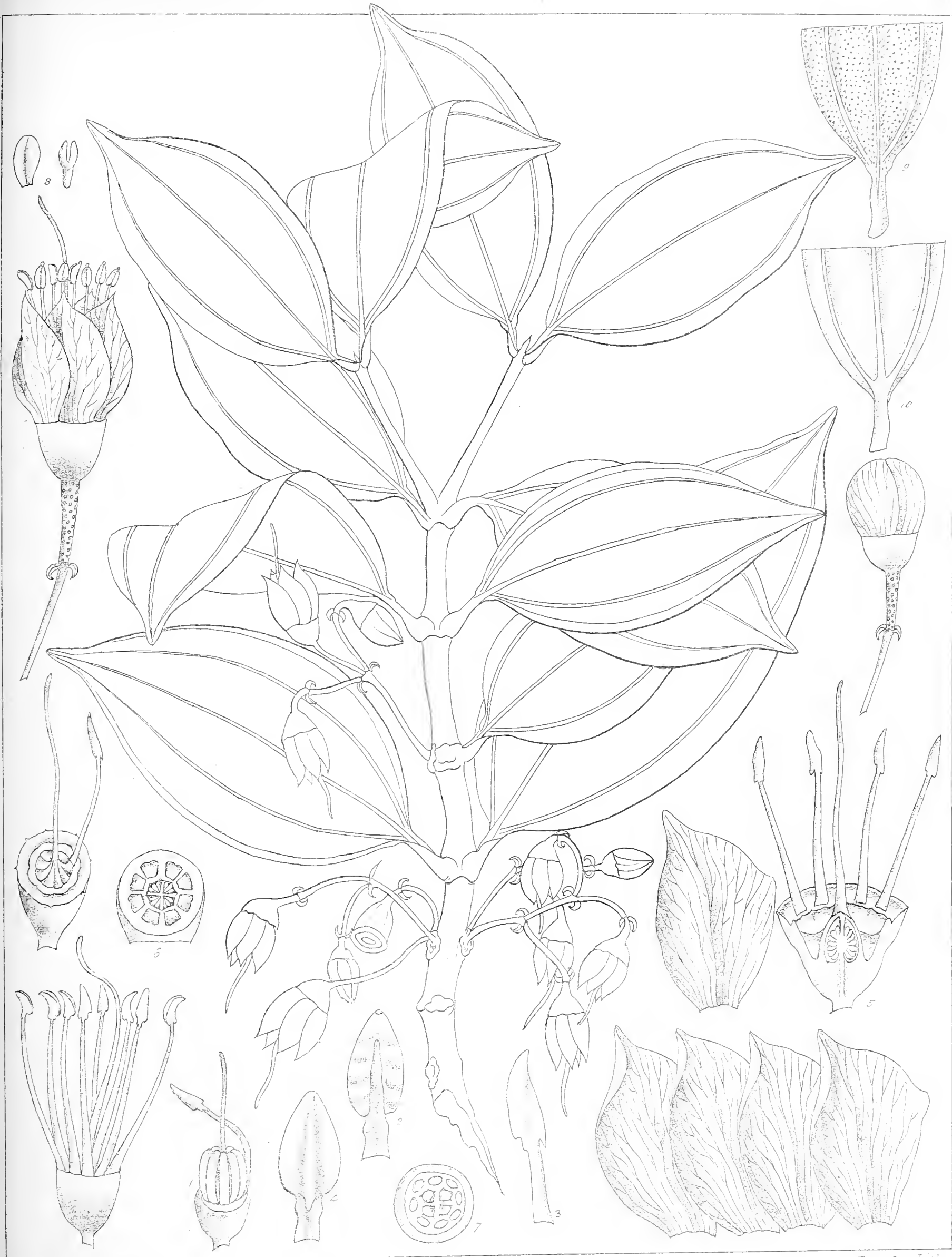
Covindoo. del.

*Sonerila thavancorica*. Bedd.

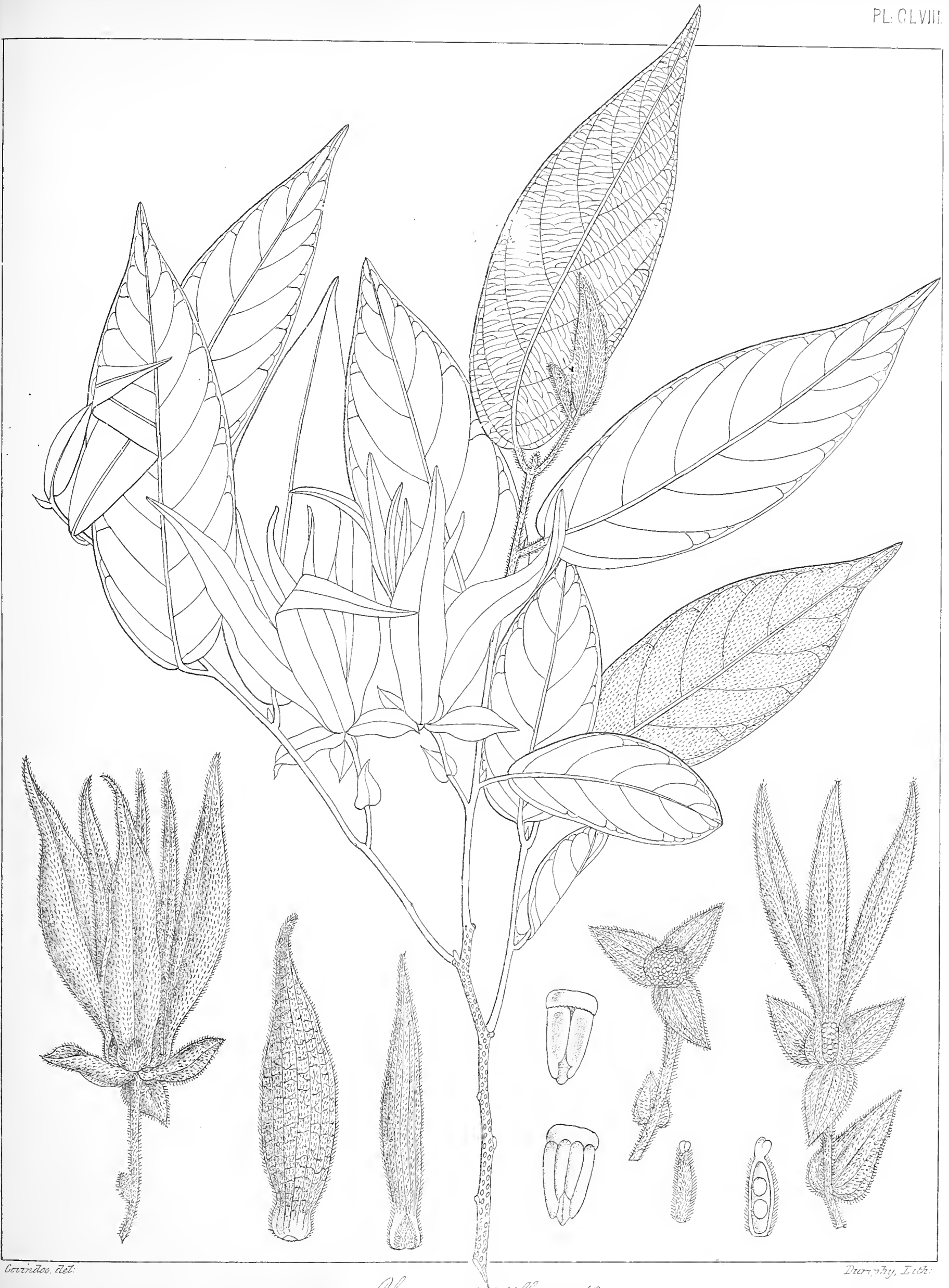
Dumphy. Lith.









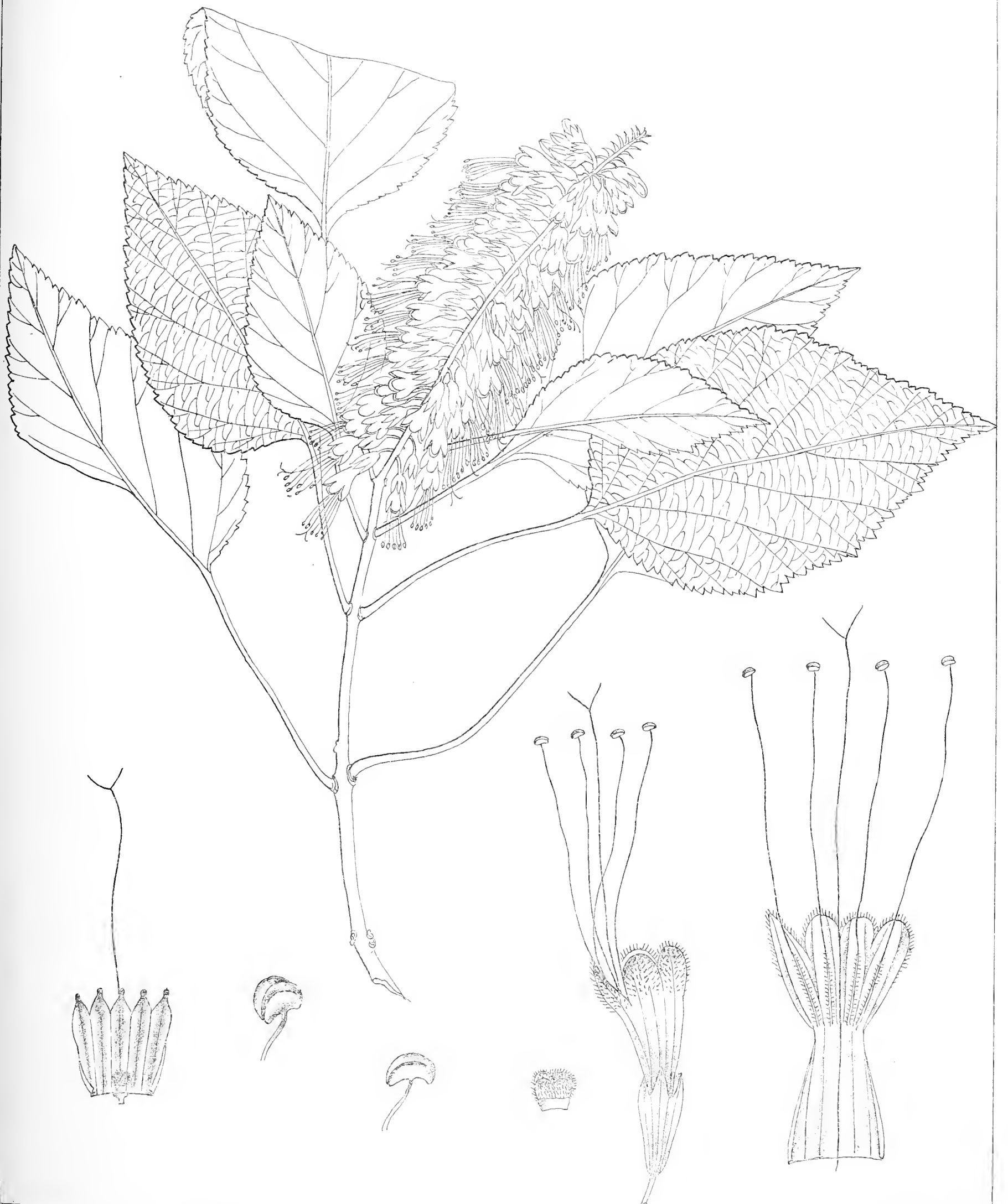


Guirados, fl.

*Unona viridiflora*. (Bedd.)

Dur., Hy., Lith.



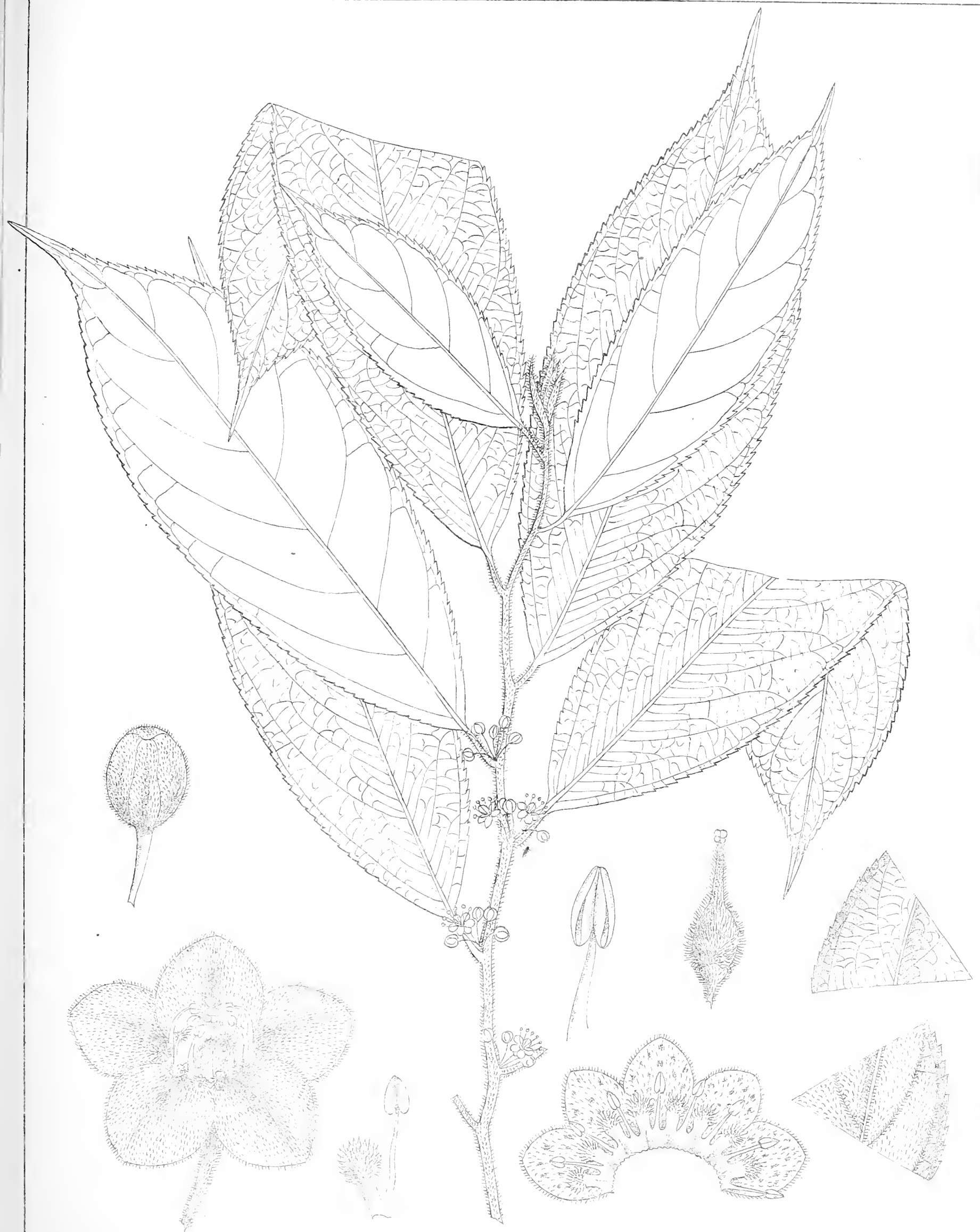


Travancore, India

*Pogostemon Travancoricum*, Bedd.

W. & A. G. S. 1880









## MYRTACEÆ.

**EUGENIA? WYNADENSIS.** (Bedd.) A small tree or large shrub, young leaves ramuli and inflorescence densely fulvo-tomentose, leaves oblong lanceolate with a long blunt acumination, when old quite glabrous on both sides, minutely dotted near the margin only,  $3-3\frac{1}{2}$  inches long by  $1-1\frac{1}{4}$  broad, petioles 3-4 lines long, peduncles supra-axillary 6 lines long, calycine-lobes 4 lanceolate acuminate a little longer than the corol, bracts 2 linear much longer than the sepals, stamens inserted round the edge of the disk, petals with pellucid dots, ovary 2 celled, ovules about 4 in each cell pendulous from the apex. *Bedd. Mad. Lit. Soc. Journ.; and Flora Sylvatica, part xvii.*

Common about Devalicottah in the Wynad, elevation 2000-3000 feet, in flower in April. It seems intermediate between Pimenta and Eugenia, having the pendulous ovules of the former and the habit and inflorescence of the latter. I have not seen the fruit.

## PLATE No. CLXI.

**EUGENIA CALCADENSIS.** (Bedd.) A small tree, young shoots, young leaves and inflorescence covered with dense rusty pubescence, leaves opposite, sometimes subalternate coriaceous, not dotted, elliptic to subobovate obtuse at the apex, very rugose on the upper side but glabrous in age except the channelled costa (venation inconspicuous above, slightly prominent beneath, the primary veins joined into a marginal one)  $2\frac{1}{2}-3$  inches long by  $1-1\frac{1}{4}$  broad, petioles 3-4 lines long, peduncles axillary solitary about as long or a little longer than the petiole, 2 flowered at the apex rarely only 1-flowered, pedicels  $1-1\frac{1}{4}$  inch long furnished with a subulate bract at the base of each and 2 small narrow linear bracteoles at the apex below the calyx, flowers showy, white,  $1-1\frac{1}{4}$  inches in diameter, calyx lobes rounded about 3 lines long, petals oblong ciliate 6-8 lines long, stigma truncate not larger than the apex of the style, disk suborbicular densely woolly covering the whole of the top of the ovary at the apex of the calyx tube, stamens inserted all over it, ovary 2 celled, ovules numerous attached to the central placenta. *Bedd. Flora Sylvatica, part xvii.*

Calcad hills (South Tinnevelly) 2000 feet elevation, a very beautiful little tree.

*Analysis.*

1. A young leaf covered with dense down.
2. Upper side of a full grown leaf glabrous but very rugose.
3. A flower bud showing the bracteoles.
4. Full flower petals removed, showing the large woolly disk and the insertion of the stamens.
5. A petal.
6. Anthers.
7. Ovary cut vertically.
8. Ovary cut transversely.

## PLATE No. CLXII.

## MELASTOMACEÆ.

**MEMECYLON AMABILE.** (Bedd.) A small tree or large shrub, the young branches acutely 4 angled, young leaves a deep blue color, leaves subcoriaceous not dotted (veins quite inconspicuous pinnate and meeting a looped vein within the margin) opaque deep green above very pale beneath subsessile from ovate to cordato-lanceolate with a gradually attenuated blunt point, 2-3 inches long by 10-14 lines broad, petioles 1 line long or sometimes none, peduncles axillary and terminal solitary or twin slender 6-9 lines long generally simply umbelliferous at the apex, sometimes branched and with several umbels, dilated at the apex into a scaly receptacle, pedicels slender 2-3 times as long as the calyx with a small bract at the base of each, calyx-lobes very small or obsolete, petals rounded, disk plane within, flowers deep blue small crowded, placenta about 5-ovuled. *Bedd. Flora Sylvatica, part xviii.*

South Canara ghats up to 2000 feet elevation.

## PLATE No. CLXIII.

**MEMECYLON GRACILE.** (Bedd.) A small tree or large shrub, young branches obsoletely 4 angled, leaves subcoriaceous ovate with a long gradually blunt acumination (veins pinnate with a looped vein near the margin but all quite inconspicuous) of a bright green on both sides or a little paler beneath,  $1\frac{1}{2}-1\frac{3}{4}$  inch long by 8-9 lines broad, petioles  $1-2\frac{1}{2}$  lines long, peduncles axillary solitary recurved or drooping slender 4-6 lines long bracteated at the apex and 3 flowered, pedicels 2-3 inches long with 2 bracteoles a little above the base, flowers small, calyx white, disk radiately winged within, petals pale blue, placentas 3-4 ovuled. *Bedd. Flora Sylvatica, part xviii.*

Travancore and Tinnevelly ghats. Not uncommon.

## PLATE No. CLXIV.

## LEGUMINOSÆ.

**SOPHORA INTERRUPTA.** (Bedd.) A large shrub, branches and petioles adpressedly pilose, stipules and bracts caducous villous, leaves 8-9 inches long, leaflets 9-14 pair with an odd one, oval very emarginate finely reticulated, glabrous above slightly hairy beneath, 10-14 lines long by 6-9 lines broad, petiolules 2 lines long, racemes terminal leaf-opposed shorter than the leaves, flowers few distant and large on pedicels about 6 lines long, petals long clawed, ovary densely sericeous 3-7 ovuled, legume slightly pilose often much interrupted and filiform between the nodes, each of which is completely 4 winged. *Bedd. Flora Sylvestica, part xv. p. xc., and Analysis of Genera tab. xii. fig. vi.*

Vencatagherry-droog near Codoor (Cuddapah district), elevation 2500-3000 feet ; a very beautiful shrub.

PLATE No. CLXV.

**TEPHROSIA CALOPHYLLA.** (Bedd.) A herbaceous perennial with a woody root and crown, stems glabrous angled or almost winged ascending or spreading 6-8 inches long, stipules subulate rigid coriaceous striated glabrous 4-6 lines long, leaves 1-foliate narrow lanceolate downy when very young soon perfectly glabrous,  $3\frac{1}{2}$ -5 inches long by 8-12 lines broad, hard coriaceous with a thickened margin and a mucro, primary veins very numerous thick and prominent and much raised on both sides, petioles from 3 lines to 4 inches long flattened and 4 angled articulated at the apex just below the leaf and there furnished with 2 subulate stipels and often a few hairs, no trace of lateral leaflets, racemes terminal elongated flat and winged or acutely angled, pedicels 3-6 lines long pubescent in flower glabrous in fruit, furnished with a subulate bract at the base, calyx and corol slightly pubescent calycine teeth very subulate equal, corol purplish-red scarcely  $\frac{1}{2}$  inch long, upper stamen free to the middle, style glabrous, stigma pencilled, legume  $2\frac{1}{2}$ - $2\frac{3}{4}$  inch long by  $2\frac{1}{2}$ -3 lines broad crowned with the curved style 6-9 seeded.

I have only found this very curious species on the dry rocky hills above the Guzzlehutty pass on the eastern side of the Nilgiris 3000 feet elevation, its leaves are very beautiful.

PLATE No. CLXVI.

## RUTACEÆ.

**TODDALIA BILOCULARIS.** (WA.) A middling sized very glabrous unarmed tree up to 3 feet in girth, with very dense foliage, diœcious, leaves trifoliate up to 12-14 inches long of which the common petiole is about 4 inches, leaflets entire oblong slightly attenuated at the base, to elliptic, ending in a bluntly pointed acumination, 6-10 inches long by  $2-3\frac{3}{4}$  broad, pellucid-dotted penniveined, primary veins prominent and nearly at right angles with the costa and joined near the margin by a continuous looped vein, petiolules equal in length about  $\frac{1}{2}$  inch long, panicles terminal or from the upper axils much shorter than the common petiole, flowers 4-5 lines in diameter greenish-yellow, calyx gamosepalous, in the 2 petaled flowers an entire thickened ring, more or less 3 lobed in the 3 petaled flowers, petals 2-3 very much larger than the calyx more or less concave pellucid dotted slightly imbricate, stamens 6 ; in the male flowers rudiment of the ovary 2 fid, in the female, stamens small effete, ovary large oblong crowned with a very large peltate stigma, 2 celled, cells 2 ovuled, fruit oblong size of a small gooseberry pellucid dotted. *Toddalia? bilocularis, W.A. Prod. p. 149. Dipetalum biloculare, Dalz. Hook. Jour. of Bot. ii. p. 38.*

This is common in the Annamallay forests, particularly in the dense moist forests in the interior on the banks of the Sholay ar (a large river) 2500-3000 feet elevation, where it grows to be a tree of considerable size and very beautiful on account of its dense dark green foliage. I found many female trees in flower and fruit last March, but did not succeed in getting male flowers, and I believe the male trees were not in flower ; the analysis which only represents female flowers and fruit, was taken from fresh specimens, 3 petaled flowers were common and in the proportion of 1 to 4 of the 2 petaled ones.

*Analysis.*

1. A flower bud.
2. Back view of a 2 petaled female flower, showing the entire ring like calyx.
3. Back view of a 3 petaled flower, showing the calyx 3 lobed.
4. A 3 petaled female flower.
5. A petal.
6. A 2 petaled female flower.
7. Anthers.
8. Ovary cut vertically.
9. Ovary cut transversely.
10. Young fruit cut vertically.
11. Young fruit cut transversely.

PLATE No. CLXVII.

## MELASTOMACEÆ.

**OSBECKIA ALVEOLATA.** (Bedd.) A very large shrub 10-15 feet high, branchlets terete or sub 4-angled densely scabrous with coarse brown hair like scales, leaves ovate to ovato-oblong prominently cordate at the base scarcely acute at the apex, very prominently 7-nerved, 3-4 inches long by 1-2 broad, above densely rugose the raised warts each terminating in a long bristle like golden hair, beneath quite honey-combed the raised reticulations very hairy, petioles 4-8 lines long, flowers in 3 short terminal 3 flowered cymes, or the 2 lateral peduncles with solitary flowers, deep purple  $1\frac{1}{2}$ -2 inches across in full expansion, calyx tube densely covered on the outside with peltate scales each of which is densely covered with long curved hairs which proceed from very swollen bases, deciduous lobes ciliate, hairy along the back and terminating at the apex with a prominent star-like tuft of coarse hairs, petals 5 slightly ciliate at the margins, anthers yellow the connective 2-auricled at the base, style thickened at the apex, stigma capitate subpeltate, fruit calyx quite truncate, capsule 5 celled.

This truly magnificent species I have only met with on the higher ranges of the Anamallays where it is abundant at the outskirts of the sholas at 6-7000 feet elevation, and a mass of bloom in March, no figure could do justice to the beauty of the leaves and calyx.

*Analysis.*

1. Slightly magnified upper surface of a leaf showing the rugosities each ending in a bristle little hair.
2. Under surface of a leaf showing the raised reticulations and deep cavities between.
3. A flower bud, petals removed.
4. A petal showing the ciliate edge.
- 5-6. Calyx opened out showing the anthers bent down.
- 7-8-9. Outside, inside and side view of one of the deciduous lobes of the calyx.
10. Anthers showing the terminal pore and the auricled base of the connective.
11. Ovary, style and stigma.
12. Front and back view of one of the peltate scales of the calyx tube.
13. Ovary cut vertically.
14. The same cut transversely.

## PLATE No. CLXVIII.

**SONERILA ROTUNDIFOLIA.** (Bedd.) Root tuberous globose, leaves all radical orbicular cordate at the base rounded at the apex serrate 5-7 nerved, slightly hairy on the nerves beneath glabrous above, rather firm in texture, purplish beneath,  $1-1\frac{1}{2}$  inches or a little more each way, petioles  $1-4\frac{1}{2}$  inches long slightly hairy, scapes glabrous or slightly hairy 4-8 inches long bracteate and 3-5 flowered at the apex, bracts small subulate, flowers pink 6-8 lines in expansion quite glabrous, petals obovate with a small mucro at the back. *Bedd. Mad. Lit. Journ.* 1861.

This pretty little species is common on rocks (during the monsoon) on the Anamallays at 4000-6000 feet elevation.

## PLATE No. CLXIX.

## MYRSINACEÆ.

**ARDISIA AMPLEXICAULIS.** (Bedd.) A shrub, quite glabrous, branchlets angled, leaves subsessile or sessile and often stem clasping with a slightly cordate base, elliptico-lanceolate, of rather thin texture the pinnate veins prominent beneath, both sides furnished with very numerous raised dots near the margin and numerous minute black dots over the surface of the leaf and occasionally a few of the raised dots also; 5-6 inches long by  $1-1\frac{1}{2}$  broad, umbels several in a small terminal panicle, very much shorter than the leaves, pedicels 4-6 lines long slightly elongating in fruit, flowers scarcely 3 lines in diameter, calyx and corol dotted, the former with the segments acute and rather deeply divided, the latter almost rotate with a very short tube, the lobes ovate acute, anthers acute a little shorter than the corol-lobes on short filaments, style slender, drupe globular 4 lines in diameter.

Tirrihoot hills, Wynad, 3-4000 feet elevation.

## PLATE No. CLXX.

## CELASTRACEÆ.

**EUONYMUS SERRATIFOLIUS.** (Bedd.) A shrub, quite glabrous, branches terete, leaves scarcely coriaceous more or less sharply and prominently serrated from narrow lanceolate to broad lanceolate tapering at the apex into a blunt point,  $3\frac{1}{2}$ -4 inches long by

$\frac{3}{4}$ -1 $\frac{1}{2}$  broad, petioles  $\frac{1}{4}$  inch long, cymes axillary generally several together filiform from one-third as long to nearly as long as the leaves, flowers 5 merous, calyx-segments unequal rounded quite entire, petals orbicular, capsule nearly globose with 5 rounded lobes. *Bedd. Flora Sylvatica, part xii. p. lxiv.*

Malabar, slopes of the Nilgiris, Carcoor ghat, at elevations about 3000 feet.

PLATE No. CLXXI.

ASCLEPIADACEÆ.

**CEROPEGIA FIMBRIIFERA.** (Bedd.) Root tuberous depresso-globose, stem erect minutely pubescent, leaves sessile or tapering into a very short peduncle narrow ensiform tapering at the apex, minutely ciliate pubescent above, glabrous beneath except on the midrib, but minutely frosted, 3-6 inches long by 2-4 $\frac{1}{2}$  lines broad, peduncles axillary  $\frac{1}{2}$ -1 inch long nearly glabrous, umbelliferous at the apex about 4 flowered, flowers opening in succession, pedicels nearly as long as the peduncle furnished at the base with a few subulate bracts, calyx segments subulate acute  $\frac{1}{4}$  as long as the corol-tube, corol-tube not much swollen at the base, narrowed upwards, segments about as long as the tube with tufts of numerous long purple gland-tipped hairs between the segments which are concealed within the corol until the petals expand, and then hang down like a fringe round the apex of the tube, outer lobes of the staminal corona short sharply bifid and ciliate, inner lobes long ligulate and adnate to the centre of the outer ones, follicles terete slender 3-4 inches long, tube of the flower greenish outside deep purple striated within, lobes of corol pale greenish purple, fringe deep purple. *Bedd. Mad. Lit. Soc. Journ. 1861, p. 53.*

Anamallay Hills, on rocky open grassy places on the hills in the vicinity of Toonacadavu, at an elevation of 3000-4000 feet; in its wild state always a small erect plant 6-8 inches high only, brought into a rich garden soil it sometimes becomes a creeper. I have constantly had it in cultivation, and it is a very showy thing.

PLATE No. CLXXII.

**CEROPEGIA ENSIFOLIA.** (Bedd.) Root tuberous subglobose, stem twining glabrous, leaves very narrow linear tapering at the apex mucronate, furnished above with a few adpressed hairs, below pale and glabrous, 4-7 inches long  $\frac{1}{4}$  inch broad, petioles 2-3 lines long, peduncles pubescent simply umbelliferous on elongate and paniculate with several umbels, from  $\frac{1}{2}$  as long as to a little longer than the leaves, pedicels pubescent 2-4 lines long furnished with ovate pointed bracts at their base, flowers greenish white segments of the calyx glabrous subulate half the length of the corol-tube, corol-tube ventricose at the base glabrous, lobes as long or a little longer than the tube, exterior lobes of the staminal corona short emarginate ciliate alternate with the inner long ligulate lobes, follicles 6-7 inches long slender terete.

Anamallay hills, rocky places on the Anagoondy range close to Toonacadavu, 3000-3500 feet elevation.

PLATE No. CLXXIII.

**CEROPEGIA BREVITUBULATA.** (Bedd.) Root tuberous subglobose, stems glabrous twining to a considerable extent over bushes, leaves narrow ensiform gradually attenuated into a point at the apex and into the short petiole at the base very minutely ciliate and slightly scabrous (under the lens) 3 $\frac{1}{2}$ -5 inches long by 3-4 lines broad, petioles 2-3 lines long, peduncles scabrous from as long to twice as long as the petioles, umbelliferous and bracteate at the apex, bracts subulate, pedicels 3-5 generally longer than the peduncle very slender and scabrous, calyx segments subulate scabrously hairy longer than the tube of the corol, corol about 1 $\frac{1}{2}$  inch long, broad oblong to subglobose, the lobes very narrow cohering at their tips and cut down nearly to the base so that there is scarcely any tube, glabrous, greenish yellow on the outside deep purple within, corona rotate furnished with only 5 depressed lobes which are connivent over the gymnostegium, follicles slender terete about 5 inches long by 2-3 lines broad.

This beautiful rather abnormal species appears to be very rare. I have only met with it in one locality on the dry rocky hills above Amerdy (close to Vellore) at about 1000 feet elevation. I collected the tuberous roots but failed in growing them.

PLATE No. CLXXIV.

APOCYNACEÆ.

**CHILOCARPUS MALABARICUS.** (Bedd.) A lofty woody climber, quite glabrous, leaves elliptic oblong with a sudden rather long and fine acumination, rounded or more or less attenuated at the base, penniveined, the veins close and very prominent and nearly at right angles with the midrib and connected by an irregularly waved vein near the margin, about 5 inches long by 2 or nearly 2 inches broad, petioles 4-6-lines long, peduncles axillary and terminal about 3 times as long as the petioles di-trichotomously cymose towards the apex, all furnished with a sticky gummy substance, flowers numerous whitish 2 $\frac{1}{2}$ -4 lines long, bracts minute ciliate,

calyx ciliate slightly hairy, segments  $\frac{1}{2}$ -1-line long, corol-tube slender more or less contracted at the apex just below the lobes, the lobes broad, anthers a little above the middle of the tube, filaments very short and hairy, or almost obsolete and a few hairs on the corol tube at their insertion, style elongate or obsolete, stigma mitriform thickened, with a terminal apiculation, fruit not seen.

Malabar on the Carcoor ghat 2000 feet elevation, South Canara in dense moist forests in the plains. My South Canara specimens have an obsolete style and obsolete filaments and rather larger flowers but they are undoubtedly the same species.

PLATE No. CLXXV.

GESNERIACEÆ.

**DIDYMOCARPUS MEMBRANACEA.** (Bedd.) Leaves all radical very delicately membranaceous, from obliquely cordato-ovate to cordato-lanceolate quite entire rather densely scattered over or both sides with long white pellucid hairs, 3-4 inches long by  $1\frac{1}{2}$ - $2\frac{1}{4}$  broad, venation penninerved very inconspicuous above, petioles  $2\frac{1}{2}$ -4 inches long densely covered with transparent scales and hairs. Scapes considerably longer than the leaves (10-12 inches) sparingly furnished with hair-like scales racemose towards the apex or for about one-third down, flowers 10-12 lines long pale blue, calycine-segments linear acute half or more than half as long as the corol-tube ciliate and hairy, corol-tube subinfundibuliform glabrous, lobes 5 rounded, anthers slightly hairy, fruit  $1-1\frac{1}{2}$  inches long finely apiculated glabrous.

A most delicate species apparently very rare, I have only met with it in one place on the South Travancore ghats, moist rocks, Pachemallay (2000 feet elevation).

PLATE No. CLXXVI.

SABIACEÆ.

**SABIA MALABARICA.** (Bedd.) A glabrous climber, leaves from oblong to lanceolate with a gradual acumination ending in a mucro-coriaceous with the margin thickened,  $3-4\frac{1}{2}$  inches long by 1-2 broad, primary veins looped well within the margin and the reticulated veinlets very prominent on the under side, petioles  $\frac{1}{2}$  to 1 inch long, racemes axillary few flowered, or in axillary leaf-bearing panicles, flowers very small hermaphrodite pentamerous, calyx minutely hairy, styles 2, petals oval, stamens shorter than the petals, filaments flat, ovules superposed, drupes flat reniform scrobiculate.

Anamallay forests, 3000-4000 feet elevation.

PLATE CLXXVII.

ACANTHACEÆ.

**ASYSTASIA TRAVANCORICA.** (Bedd.) A large woody erect shrub 6-8 feet high, young branches terete strigosely hairy, leaves linear lanceolate, punctate and lineolate and sparingly hairy on the costa and veins,  $3-4\frac{1}{2}$  inches long by  $\frac{1}{2}$ - $\frac{3}{4}$  inch broad, petioles  $\frac{1}{2}$  to 1 inch long, racemes terminal often more or less branched strigose, bracts subulate, pedicels slender 3-6 lines long calyx minutely puberulous deeply 5 cleft, segments subulate, corol slightly puberulous or glabrous deep violet or white, about  $1\frac{1}{2}$  inch long, tube suddenly narrowed at the base swollen upwards, limb subcampanulate, lobes subequal rounded, anthers included, their inner lobes considerably the longer, all the lobes bifurcate at the base, ovary and style slightly hairy, stigma long linear slightly truncated and 2 lobed at the apex.

This differs from all our other S. Indian species in being a woody shrub, it is very abundant in the beds of rivers in the Paupanassam and Calcad hills in South Tinnevely, and on the South Travancore hills, but I have never seen it as far north as Courtallum; it is by far the handsomest of the species. I introduced it into Madras some years ago, and it is now common in most gardens in Madras and Bangalore. It grows well from seed; the flowers are generally of a very beautiful deep violet purple, but one variety has white flowers.

PLATE No. CLXXVIII.

**PHLOGACANTHUS GRANDIS.** (Bedd.) A large shrub 8-12 feet high, glabrous, leaves 8-18 inches long, lanceolate broadest above the middle and very gradually attenuated down to the base, rather suddenly attenuated at the apex and acute glabrous on both sides obscurely crenated, primary pinnate veins prominent, petioles 1-2 inches long, panicles axillary from as long to somewhat longer than the leaves, the rachis very flat and winged, ramifications rather distant and few flowered, the lowest pair of bracts on the rachis large and leafy, smaller upwards, flowers crimson 10-12 lines long, bracteoles at the base of the pedicels subulate, those below the calyx stem clasping and ovate, calyx or corol slightly puberulous, the former of 5 equal subulate segments, corol tube very short, upper lip entire concave scarcely emarginate at the apex prominently auricled at the base just at the apex of the tube, lower lip shortly 3 lobed slightly auricled at the base hairy and rough inside at the base along the centre, lobes not more than a 5th the total length of the lip,

anthers 2, filaments quite distinct inserted on the lower lip at the centre of the tube, slightly hairy particularly at their dilated bases. Style slightly hairy, stigma capitate very small, ovary many seeded.

This very fine large species only inhabits the ghats in the most southern parts of Tinnevely and Travancore at 3000-4000 feet elevation ; it is very abundant in the dense moist forests above Paupanassam and Calcad, and is in flower in August and September.

PLATE No. CLXXIX.

**PHLOGACANTHUS ALBIFLORUS.** (Bedd.) A large shrub 6-10 feet high, glabrous, leaves lanceolate with rather a long acumination subentire or obscurely crenately waved, glabrous above, very sparingly hairy on the costa, veins and veinlets beneath, about 5 inches long by  $1\frac{1}{2}$  to 2 broad, panicles shorter than the leaves corymbiform, bracts and bracteoles small subulate, flowers pure white 14-15 lines long calyx and corol sparingly puberulous, the former of 5 equal subulate segments, corol tube very short upper lip concave entire or very slightly emarginate at the apex, auricled on both sides at the base on the outside just at the apex the tube, lower lip auricled at the base shortly 3 lobed at the apex, hairy inside at the base in the centre, anthers 2, filaments quite distinct inserted on the lower lip at the centre of the tube slightly hairy, much dilated below articulated near the apex, and quite black above the articulation, style slightly hairy ; stigma capitate very small, ovary many seeded, capsule terete striated  $2\frac{1}{2}$ - $2\frac{3}{4}$  inch long by 2 lines broad many seeded, seeds scrobiculate.

South Tinnevely mountains 3000-5000 feet elevation, it comes further north than the last species and is abundant at the Chinna kal rāty on the ascent to the General's hill near Courtallum, in flower during the rainy season. It is not so common as the last, but I have collected it in several places to the south of Courtallum. I have given very full description and careful analysis (drawn from fresh specimens) of these 2 interesting species, as they are perhaps not true Phlogacanthi though agreeing technically with the genus, and I do not know where else to refer them ; the articulated filaments of *albiflorus* are very peculiar, but there is no trace of this articulation in *grandis*.

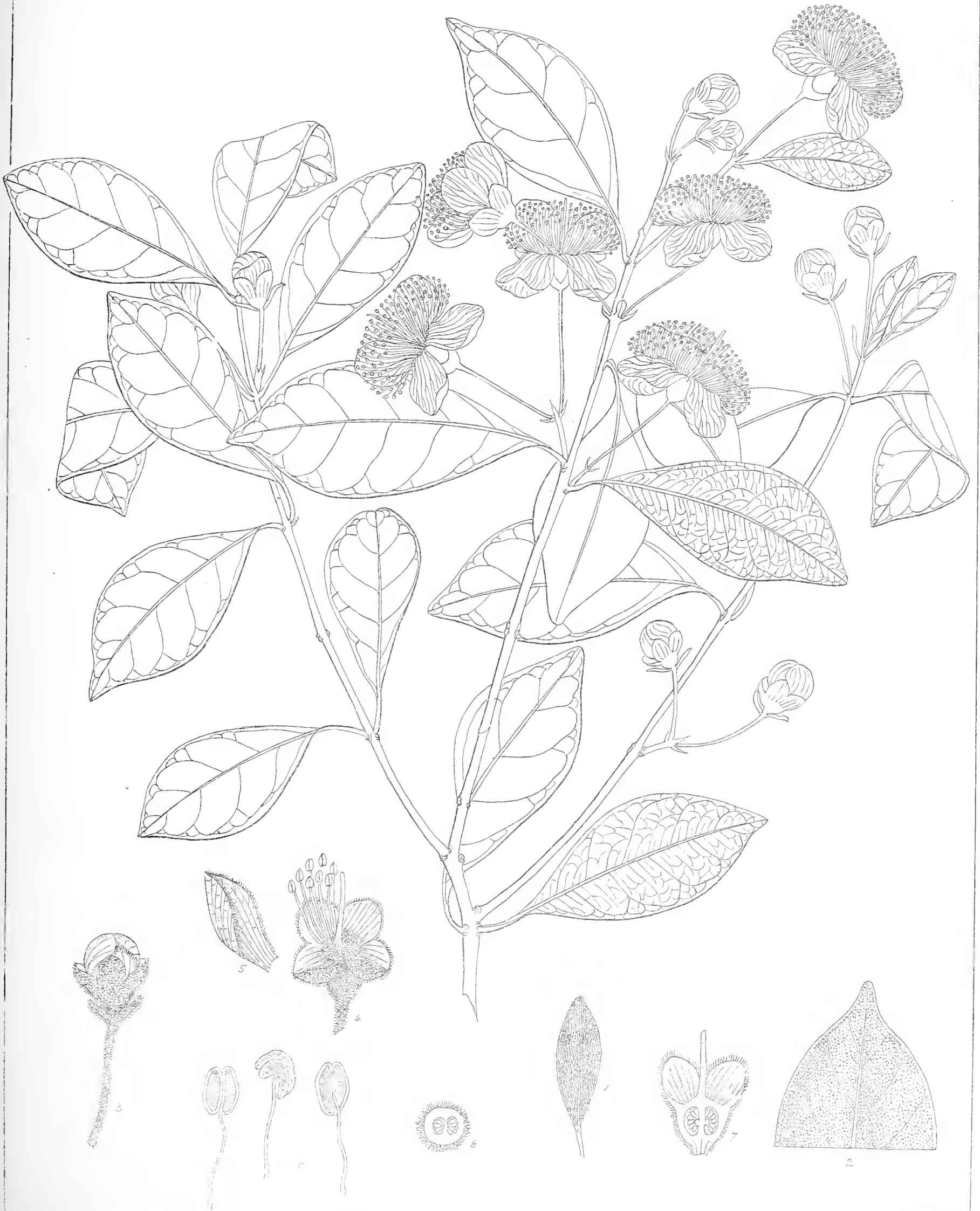
PLATE No. CLXXX.











*Crataegus californensis* Hook.



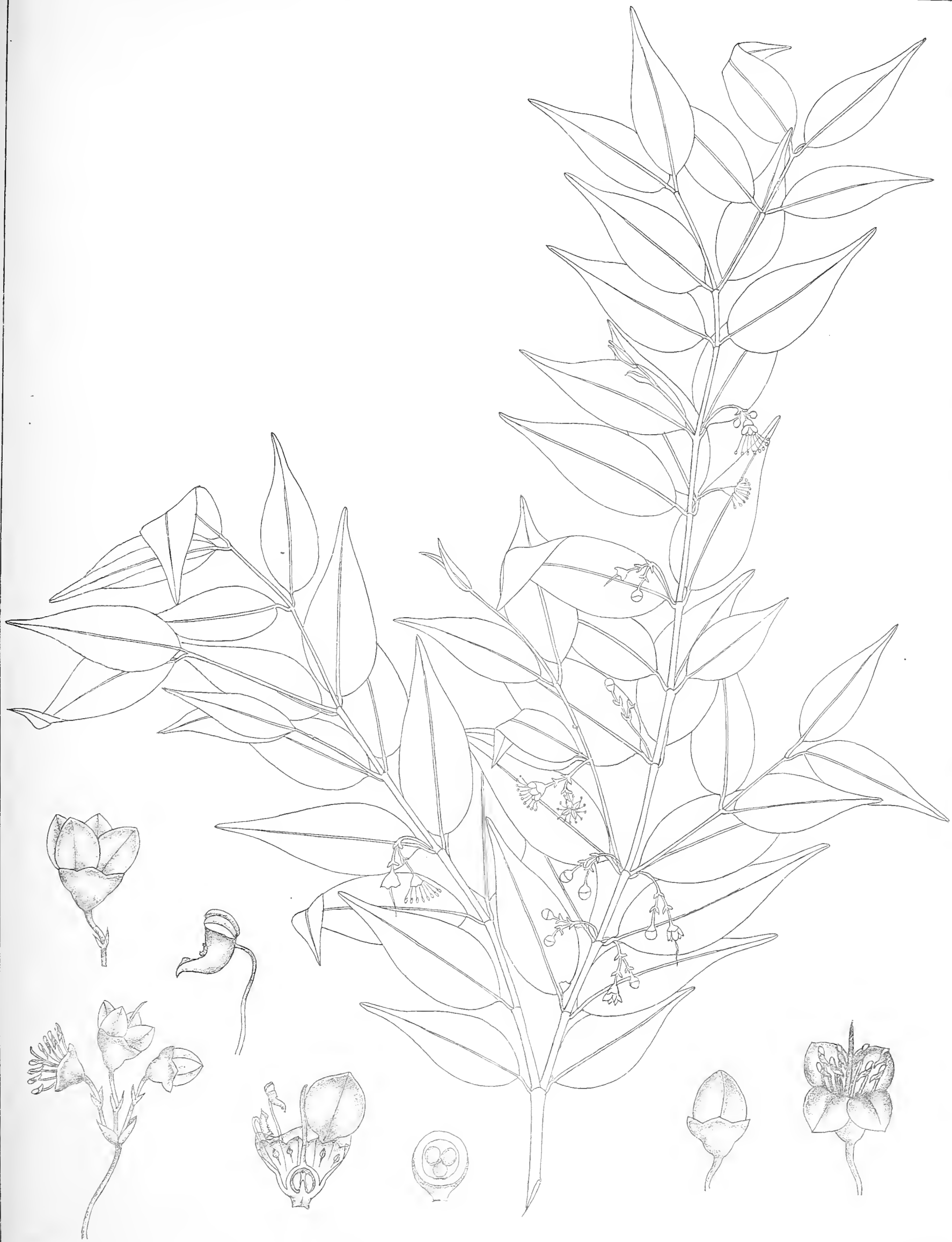


Govinda, del.

Thompson, J. del.

*Memecylon amabile* (Bedd.)





*Memecylon gracile* (Bedd.)



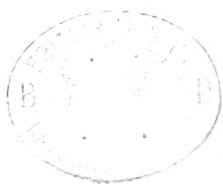


Gouan 1791

*Sophora interrupta* (Beda.)

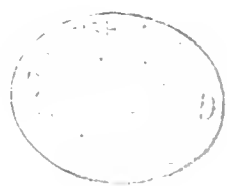
Linnaeus 1753







*Tephrosia calophylla*. (Bedd.)







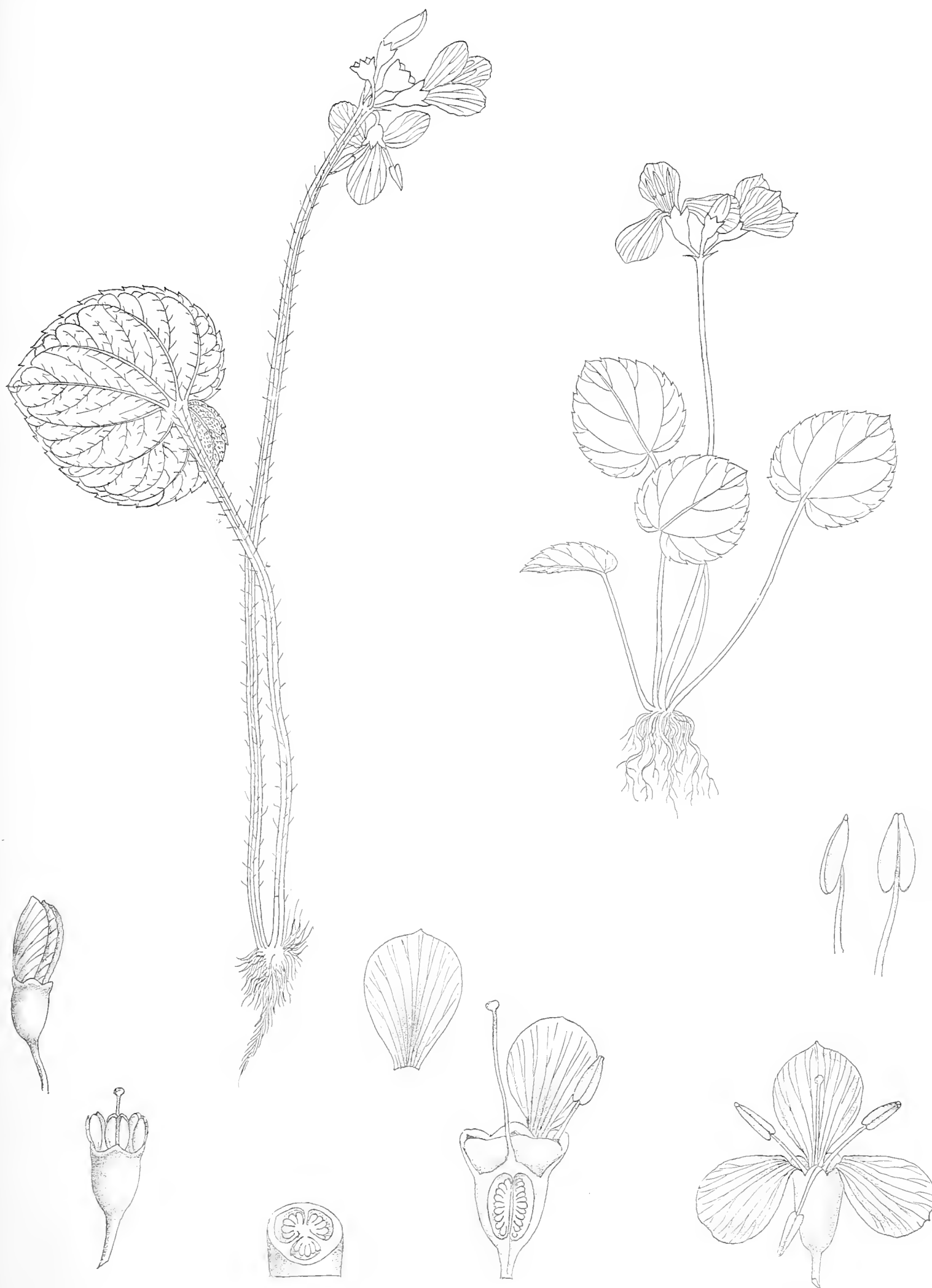


Govindo: del.

*Tobackia alveolata*, Widd.

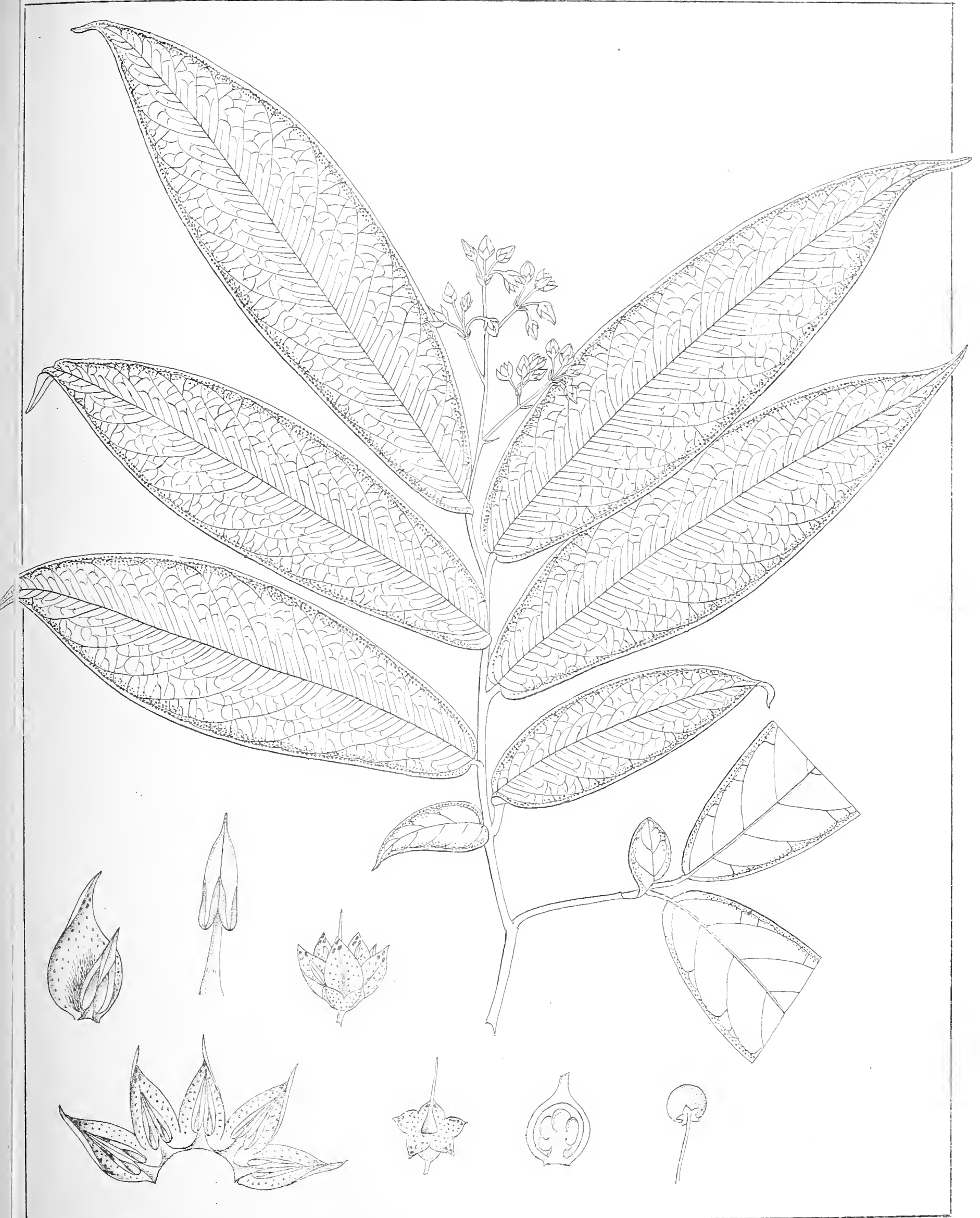
Tampora Lili













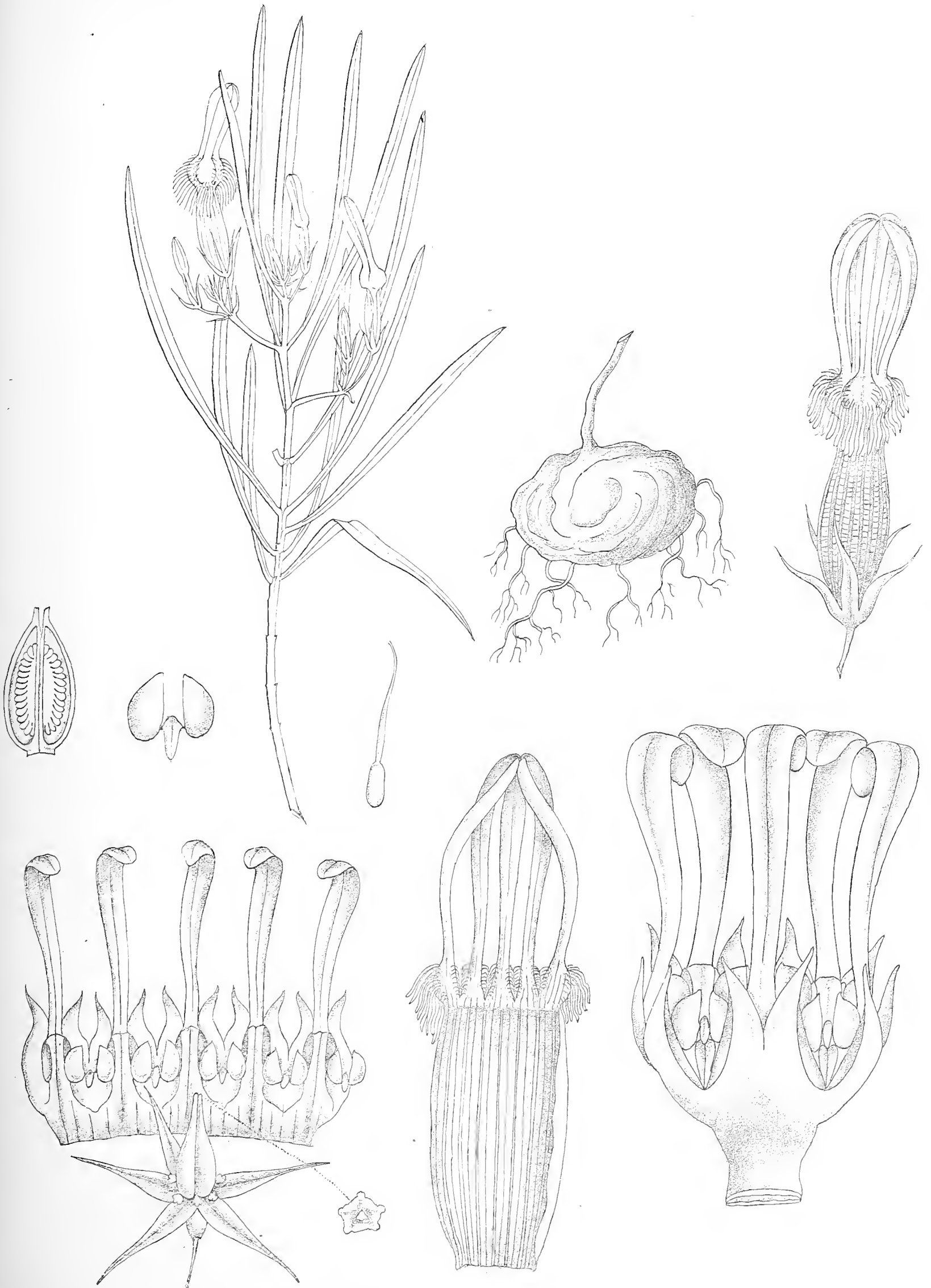


G. W. G. del.

*Euonymus serratifolius*, Bedd.

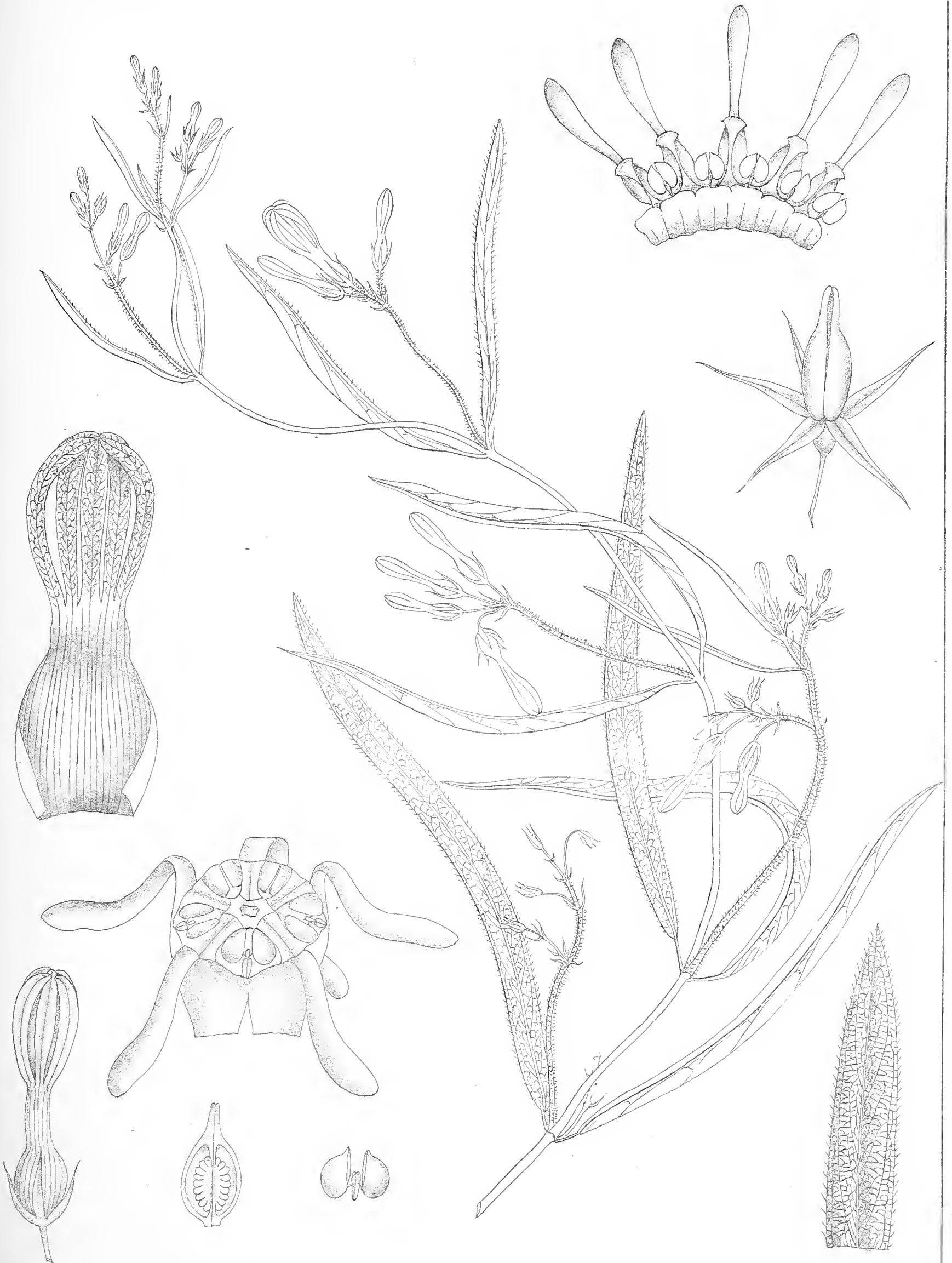
Dumortier del.





*Ceropogia fimbriifera* (Bedd.)





copiado del

Dumphy, Lib.

*Ceropogia ensifolia* (Bedd.)









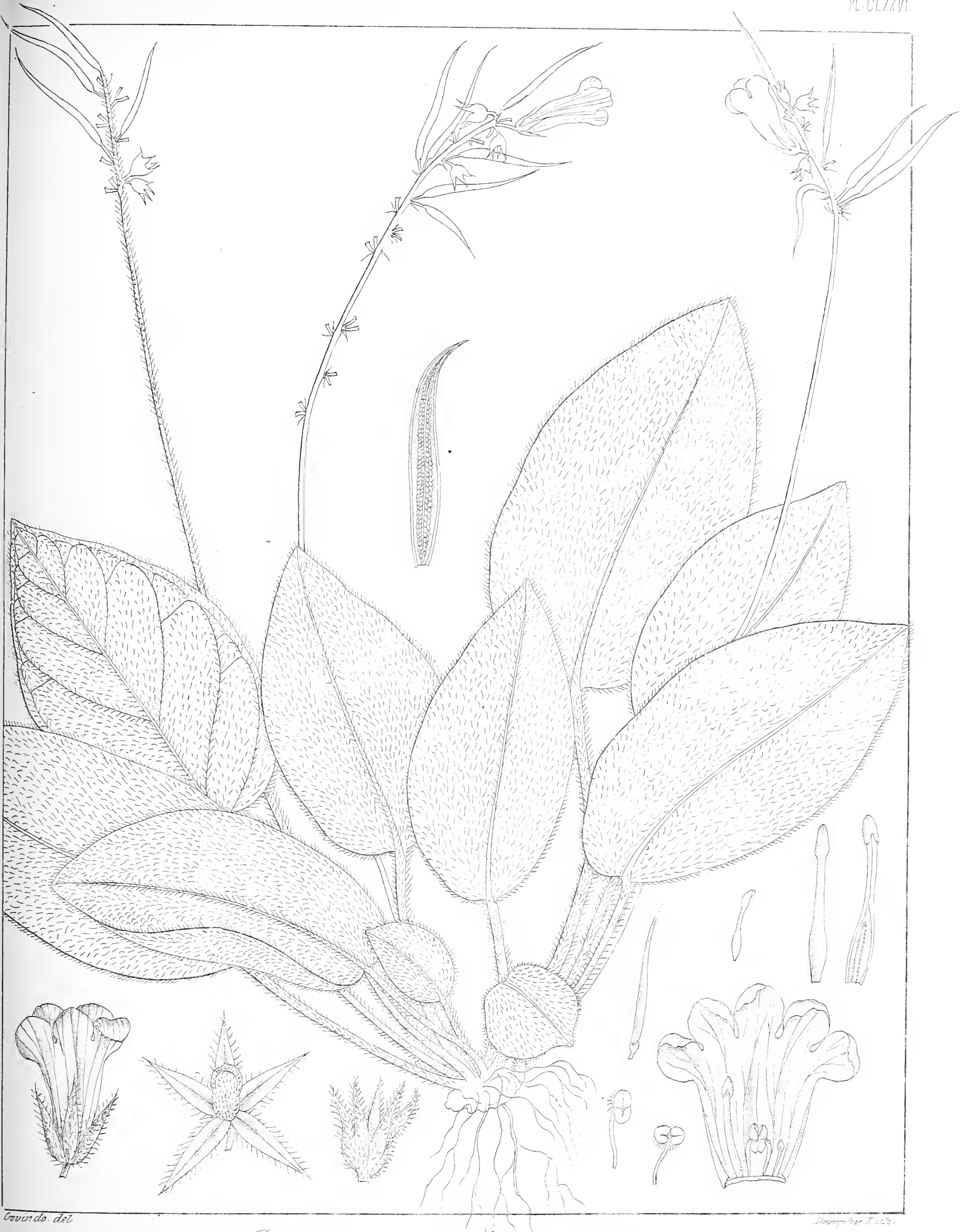


Grönroos del.

*Chilocarpus Malabaricus*; Bedd.

Thompson Lith.





Covindo del.

*Didymocarpus membranacea*, Wedd.

Durand et F.











Govinda. del.

Thunberg. lith.

*Asystasia Travancorica* (Bedd.)



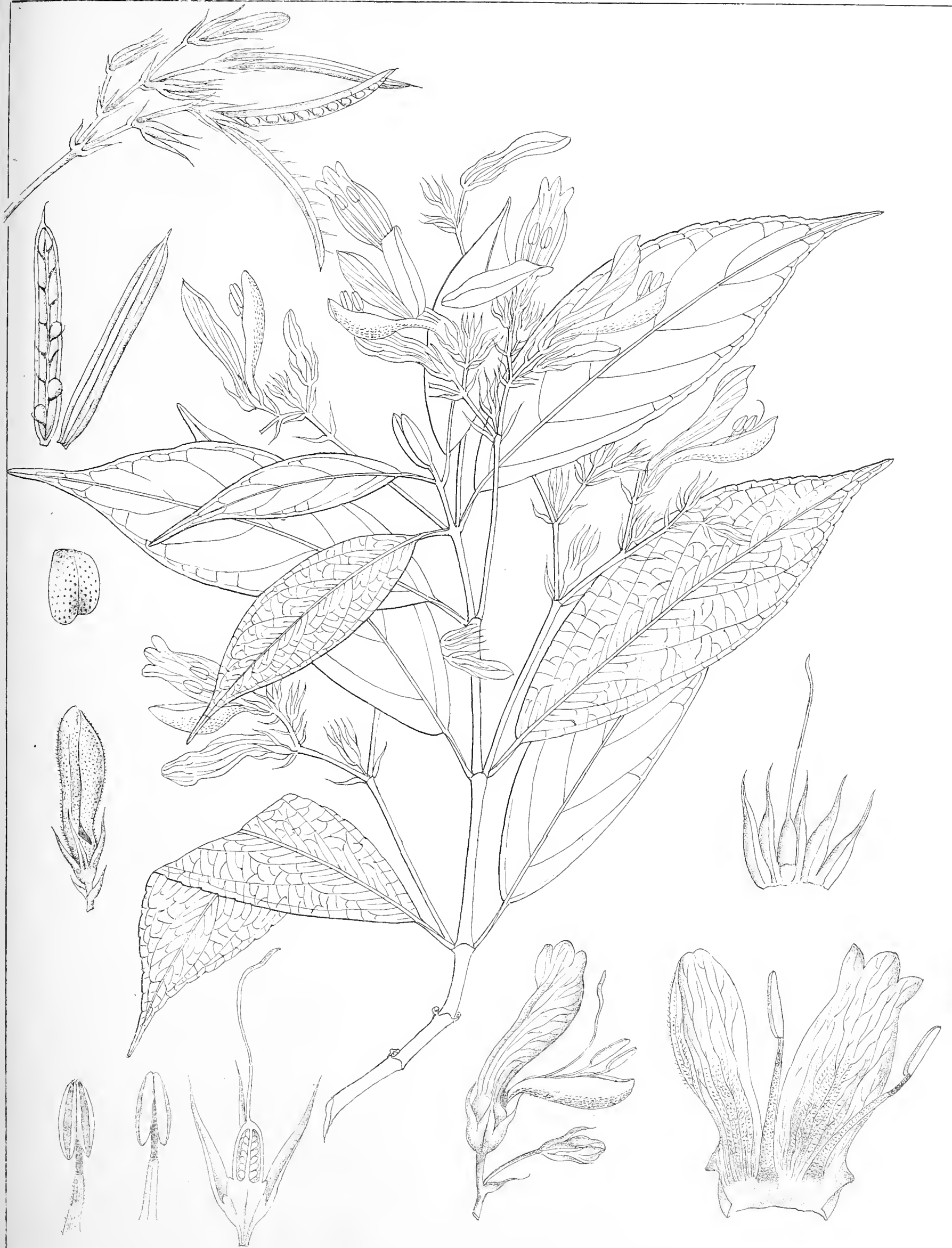


Gravido del:

*Phlogacanthus grandis*, Bedd.

Dumphy Lith





Gravido del.

*Phlogacanthus albiflorus, Bedd.*

Tumphy Libr.



## EUPHORBIACEÆ.

**CROTON MALABARICUM.** (Bedd.) A tree 20-30 feet high, the whole plant very silvery, leaves alternate oblongo-ovate ovate to rhomboid-ovate acuminate, entire, above in age very sparingly covered with grey stellate scales or rarely quite glabrous, beneath very silvery and densely matted with scales, primary veins 6-7 on each side raised and prominent beneath, glands 2 very small immersed ones at the base on the underside, 2-6 inches long by 1-3 broad, petioles 1-2 inches long silvery but also with rusty scales, stipules setaceous 6-9 lines long, racemes terminal solitary or 2-3 together about 2 inches long, the upper half male, the lower half female silvery as are the flowers, disk of 5 lobes present in both sexes, but very inconspicuous in the dense wool. *Male* petals less than a third the size of the sepals woolly, stamens 10. *Female*: no petals, styles 3 each 2-cleft to nearly the base the arms filiform blackish glabrous or subglabrous in age, fruit obovoid fusco-stellate about 1 inch long by 8 lines wide slightly raised above the calyx on a stalk 1 line long, (base of the central column which runs up between the cocci and which is persistent after they fall off), fruiting calyx scarcely enlarged.

This tree is common in all our western forests up to 4000 feet elevation; it has the same silvery appearance as *reticulatum* (hypolencos, Dalz.) but is a tree instead of a small shrub, has much larger leaves and very different glands, fewer stamens, larger fruit and different style; it answers very exactly to Roxburgh's description of *C. bicolor*, except in its shorter racemes, but I dare not give it that name as that species is from Sumatra only, but I should not be surprised if it turns out to be identical with it. Figure A is the fruit, life size.

## PLATE No. CLXXXI.

**TRIGONOSTEMON NEMORALIS.** (Thw.) A shrub or small tree, the young angled ramuli, the young leaves and inflorescence sericeo-pubescent soon glabrous; stipules subulate 2-3 lines long subpersistent, petioles 2-3 lines long pubescent bidenticulate at the apex, leaves penniveined subglabrous 3-6 inches long by 1-1½ inches broad lanceolate acuminate mucroulate crenato-denticulate, racemes many flowered shorter than the leaves floriferous from the base, the flowers and pedicels about equal in length, petals dull red oblong entire 2-3 times longer than the unequal lobes of the calyx, anthers 3-2, anther-cells subparallel a little distant, at the apex of the rounded connective, female flowers a little larger than the male 6-7 lines in expansion, ovary hispid. Style-lobes 3 short spatulate emarginate reflexed, capsules nearly ½ inch diameter muricate pilose of 3 rounded cocci, seed spherical 3 lines in diameter a little keeled on the back, testa smooth marbled. *Thw. En. Pl. Zey. p. 277;—DC. Prod. xv. 1108.*

Tinnevely mountains, south of Courtallum, common in the moist forest at 2000-3000 feet elevation (Ayen Covil pass, banks of the Garna river, &c.); Ceylon, central provinces, 2000 feet elevation.

## PLATE No. CLXXXII.

**CYCLOSTEMON MALABARICUS.** (Bedd.) A large tree, young branches densely aureo-tomentose, leaves entire membranaceous oblong rather suddenly acuminate at the apex unequal sided at the base (one side attenuated, the other rounded) tomentose on both sides when young at length glabrous above except the costa, pilose beneath on the costa and veins, 8-9 inches long by 2½ broad primary veins prominent on the under side 7-10 on each side, petioles about 3 lines long, male flowers densely fascicled on the older branches, pedicels about 3 lines long aureo-tomentose, calyx-segments 4 broad cucullate imbricate densely aureo-tomentose on the outside glabrous within, stamens very numerous in 2-3 rows round a tomentose cup-like disk, anthers introrse, rudiment of ovary none. Female flowers not seen, fruit solitary along the older branches on pedicels ½ inch long, about 1 inch long by ¾ inch broad densely tomentose crowned by the 2 reniform stigmas.

Tinnevely ghat forests, 3-4000 feet elevation (near the Parapett Coffee estate.)

## PLATE No. CLXXXIII.

## MELASTOMACEÆ.

**MEDINILLA RADICANS.** (Don ?) A perfectly glabrous fleshy epiphyte, branches terete fleshy, leaves opposite very fleshy suborbicular about 1½ inches long by a little less in breadth, 3-nerved but the lateral nerves very inconspicuous on account of the fleshy nature of the leaves, petioles reddish about 3 lines long, peduncles axillary 1-flowered 6-8 lines long, often with 2 minute bracteoles a little above the base, flowers 14-15 lines long and showy. Calyx turbinate truncated entire very fleshy with a thickened ring inside from which the stamens arise, petals 4 pure white obliquely obovato-spathulate. Stamens 8 alternately shorter or sometimes subequal, rarely 4 hooked staminodes present 1 opposite each of the larger stamens, filaments filiform, anthers 5-6 lines long curved attenuated at the apex, thickened below and furnished at the base in front with 2 spurs, the 4 shorter ones with a long single descending



posterior spur and the 4 longer shortly spurred or truncated behind, ovary with 8 wings or partitions as in *M. Malabarica*. Style slender, stigma very small truncate, berry turbinate 4-celled.—*Triplectrum radicans*, *Don. WA. Prod.* 324 ?

A beautiful species very abundant in the Wynaad and almost throughout our western moist forests between 2000 and 3500 feet elevation ; it flowers in March, but I believe very rarely ; it differs so considerably from the plant described as *Triplectrum radicans* in Wight and Arnott's *Prodromus*, that it may not be their plant, though I believe it to be ; it is so fleshy and shrivels up so completely in drying that it could hardly be described except from fresh specimens or from specimens in spirits. The drawings and analysis were taken from living plants collected on trees at Luckady in the Wynaad. I only found the 4 sterile stamens present in one flower out of some 8 or 10 dissected ; they were not alternate with the other 8 stamens, but opposite to the longer ones. I have represented one of them in the drawing.

#### PLATE No. CLXXXIV.

#### DIPTEROCARPEÆ.

**HOPEA MALABARICA.** (Bedd.) A very large tree, with a most valuable hard timber, bark blackish peeling off in long strips which become recurved and hang all round the trunk ; young shoots, petioles, panicles, and calyx glabrous, leaves oval or ovate with a longish acumination glabrous on both sides, primary veins distant very prominent beneath 3 or rarely 4 or very rarely 5 on each side, one or two of them furnished beneath with very large glabrous glands in the axils, 4-6 inches long by 2-2½ broad, petioles 6-9 lines long, panicles from the old axils 3-4 inches long, flowers pedicelled rather distant sometimes secund or subsecund but not always, yellowish white about 5 lines long (much larger than in *parviflora*), calyx glabrous but minutely ciliate, petals very hairy outside on the right hand half, the inner half which is imbricated whilst in bud glabrous, quite glabrous inside, with a twisted flattened prolongation at the apex, stamens 15 alternately single and double, filaments very flat below with a long apiculation below the anther, anthers with a long glabrous setaceous bristle more than twice their length. Stigma with 3 very minute points, (under the lens), fruit glabrous 2 of the sepals enlarging into wings 3-3½ inches long by 1-1½ broad prominently 10-12 veined, a 3rd sepal occasionally somewhat enlarged.

A very large tree, Carcoor ghat, (Wynaad) and Anamallay forests ; in flower in February and March, called Kallu in Malabar. It is allied to *Hopea parviflora*, but has glabrous panicles and much larger flowers and fruit, and the leaves differ considerably generally having only 3 very prominent lateral veins in this (rarely 4, very rarely 5) with large glands only in 1-2 of the axils, whereas in *parviflora* there are 5-9 veins (generally 7-8) not so prominent and smaller glands in the axils of almost all, the fruit-wings are red.

#### PLATE No. CLXXXV.

#### LEGUMINOSÆ.

**DERRIS EUALATA.** (Bedd.) A gigantic creeper, young parts minutely sericeous, leaves alternate 10-14 inches long 6-9 inches broad, leaflets rather coriaceous 3-4 opposite pair and a terminal one, oval to oblong with a very blunt point at the apex, glabrous on both sides, rather shining above pale beneath, 2½-5 inches long by 2-2½ inches broad, penniveined ; petiolules 3-4 lines long, the terminal one 10-16 lines long ; panicles terminal and axillary elongato-thyrsoïd aureo-tomentellous up to 1 foot and even more long, the upper branchlets not much shorter than the lower, flowers rather numerous white 5-6 lines long the lower ones of each branchlet opening first and falling off long before the upper buds open, pedicels filiform 2-3 lines long, vexillum without callosities and with a short claw, stamens 9 and 1, the vexillum one quite free, ovary villous, ovules 4-5, style villous, stigma minute, legume narrow oblong flat apiculate 4-5 inches long by 1-1½ inches broad 1-3 seeded, reticulated, very prominently winged all round, the wings 3-3½ lines broad subcoriaceous, the upper suture prominently keeled and slightly winged,

Very common in the plains of South Canara and Malabar and about the foot of the Coorg ghats ; it is closely allied to and perhaps not distinct from *D. thyrsoïflora*, *Benth. Linn. Soc. Journ. vol. iv. Suppl. p. 114*, but that species is only recorded from Eastern Bengal and the Archipelago. *Pongamia ovalifolia*, *Wight Icones* 328, may also be a bad figure of this species. Some of my specimens have almost as small leaves, and if the figure of the inflorescence is taken for the base of the panicles (not for racemes along naked branches as described), it may well be this species ; at any rate, I have met with no other plant corresponding to Wight's figure.

#### PLATE No. CLXXXVI.

#### ANACARDIACEÆ.

**SEMICARPUS AURICULATA.** (Bedd.) A good sized glabrous tree, diœcious, leaves oblanceolate with a small blunt acumination very gradually attenuated at the base and there furnished with 2 rounded lobes just above the petiole, glabrous of a dull green color, costa slightly rusty, margin membranaceous, about 7 inches long by 1½ inches broad above the middle, venation prominent,

petioles 2-3 lines long, *male* flowers very small yellowish-white very numerous in very compound glabrous panicles which are longer than the leaves, flowers generally 3-merous but often 4-merous, calyx slightly pubescent, petals veined glabrous, abortive ovary very small round with a turbinate apex, the *female* panicles (on a separate tree) much shorter than the male and few flowered, flowers much larger (more than twice as large as the male) greenish yellow, 4-5-merous, calyx very slightly pubescent, petals prominently veined (veins black), stigmas large, drupe obliquely obovate about 6 lines long by 4-5 lines broad supported on a short broad cup-like hypocarp. *Bedd. Fl. Syl. letter-press Pl. ccxxxii.*

Travancore and Tinnevely mountains up to 2500 feet elevation, very common throughout the new Pooleary pass between Quilon and Courtallum, also at Panalur at no great elevation on the Travancore side of the ghats. The male tree is very showy when in full blossom, being a perfect mass of yellowish white flowers; the female tree is inconspicuous, the flowers being few and greenish in color; the tree flowers in November.

PLATE No. CLXXXVII.

RHAMNEÆ.

**COLUBRINA? TRAVANCORICA.** (Bedd.) A large shrub unarmed, young parts and young leaves beneath and costa above densely aureo-pubescent, in age the branches are slightly pubescent, leaves alternate but approximated in pairs (or subopposite) oblong with a longish rather blunt acumen rounded or subcordate at the base serrate, 3-nerved at the base penniveined above, primary veins 4-5 on each side subglabrous in age or the costa and veins slightly pubescent, 3-5 inches long by  $1\frac{1}{2}$ -2 broad, petioles 4-5 lines long, stipules long subulate soon deciduous, flowers small in short pedunculate axillary cymes a little longer or twice as long as the petiole, fruit (not mature) 6 lines in diameter globose slightly depressed at the top.

Travancore plains between Cotacarray and Panalur, in flower and fruit in November.

PLATE No. CLXXXVIII.

ROSACEÆ.

**PARINARIUM TRAVANCORICUM.** (Bedd.) A small very graceful tree, young parts with silky adpressed greyish white pubescence, leaves membranaceous or submembranaceous lanceolate or linear-lanceolate with a generally bluntish acumen entire glabrous in age except the costa beneath which is often silky, 4-5 inches long by  $1-1\frac{1}{4}$  broad, furnished with 2 inconspicuous glands at the base of the lamina beneath, primary veins numerous, veinlets much reticulated and prominent beneath, petioles 2-3 lines long, stipules (fig. A.) 4-5 lines long linear-lanceolate silky deciduous, racemes terminal simple or cymosely branched, 3-4 inches long, silky pubescent, furnished with numerous lanceolate or linear-lanceolate bracts, calyx segments ribbed down the back acuminate or acute, petals oval or oblong glabrous, veined; stamens 12-10 unilateral quite free at the base, filaments twice as long as the calyx-tube, ovary hirsute 2-locellate.

I have only found this very graceful tree on the Travancore mountains about 2000 feet elevation, near the Rosemally Coffee estates not far from Courtallum; it is allied to *P. Indicum*, but more pubescent and with much smaller narrower leaves.

PLATE No. CLXXXIX.

RUBIACEÆ.

**TIMONIUS JAMBOSELLA.** (Gærtn.) A very small tree or large shrub, young parts and young leaves strigosely hairy, leaves elliptic lanceolate acuminate entire, 3-7 inches long by  $1\frac{1}{4}$ - $2\frac{1}{2}$  broad, glabrous in age except the costa beneath and the hairy glands in the axils of the main veins, petioles 6-9 lines long, stipules hairy on the back ovate acuminate 3-4 lines long, diæcious, male and hermaphrodite, flowers yellowish-white, lobes fleshy subimbricate, *male* peduncles axillary opposite springing from within the stipules,  $\frac{1}{2}$ - $1\frac{1}{2}$  inch long bifurcate with a flower in the fork, the branchlets few-flowered, flowers subsecund, corol infundibuliform hirsute outside sulcate within, stamens 4 attached by the middle of the back by a very short filament which does not extend nearly to the base of the lower lobe, style hairy especially towards the apex, stigma minute entire, *hermaphrodite* peduncles axillary 1-flowered  $1\frac{1}{2}$  inches long, flower articulate bibracteolate at the base, corol lobes more fleshy than in the male each lobe most prominently 3-sulcate on the inside, filaments much longer than in the male and extending below the lower lobe of the anther, ovary about 12-celled, style 2-cleft at the apex each arm with 2 entire stigmas. Eupyrene, *WA.*

Ceylon, up to 5000 feet, very common about Badagam in the south of island, also in the peninsula? Thwaites describes the stigma of the male flower as minutely bifid, and the hermaphrodite stigmas as 12 (i. e., the 4 lobes each 3 cleft), but I do not find this in any flowers that I dissected; the 4 stigmas appear to be quite entire.

PLATE No. CXC.

**HEDYOTIS CAPITATA.** (Bedd.) A woody nearly glabrous shrub 5-8 feet high, young ramuli somewhat angled and with the stipules and peduncles slightly hairy (under the lens), leaves ovate slightly acute very coriaceous,  $1\frac{1}{4}$ - $1\frac{3}{4}$  inches long by  $\frac{3}{4}$ - $1\frac{1}{4}$  inch broad, very prominently 7-9 nerved from the base, nerves channelled above, raised beneath, petioles very flat and dilated 1-2 lines long. Stipules broad ovate glanduloso-fimbriate, peduncles terminal and from the upper axils  $1\frac{1}{2}$  inches long, flowers 4-merous small and inconspicuous densely capitate in globose ( $\frac{1}{2}$  inch diameter) heads which are furnished at the base with 2-4 small sessile leaves, calyx and corol strigose with shining hairs, bracteoles glanduloso-fimbriate. Ovules 6-8 in each cell attached to a fleshy placenta which is erect from the lower part of the axis.

I have only found this very distinct species on the mountains just above Palghat at an elevation of 6500 feet, abundant in open grassy places.

PLATE No. CXCI.

GERANIACEÆ.

**IMPATIENS BALLARDI.** (Bedd.) Herbaceous weak suberect,  $1\frac{1}{2}$  feet high, stems glabrous often rooting between the leaves, leaves alternate and opposite ovate acute, incurved-setaceo-dentate and furnished near the base on the margin with pedicelled glands, 1-2 inches long by  $\frac{1}{2}$ -1 inch broad, above furnished with a few weak very inconspicuous hairs on the veins, beneath glabrous and much paler, primary veins 3-4 on each side, petioles 3-7 lines long, peduncles solitary terminal or from the upper axils  $2\frac{1}{2}$  inches long subglabrous 5-8 flowered at the apex, pedicels slender elongate, flowers  $\frac{3}{4}$  inch long, vexillum hooded slightly keeled at the back with a rounded point at the apex, alæ spreading, the lower lobe very much larger than the upper, labellum attenuated into a long spur gibbous at the middle, capsule ovate swollen subglabrous 3 lines long 7-10 seeded, seeds with weak hairs.

Travancore mountains, on the ghat up from Cottayam to Peermede, and about Peermede 2-3500 feet elevation, allied to *I. Goughii*, but with much longer flowers and differently shaped petals.

PLATE No. CXCII.

MELIACEÆ.

**AGLAIA MINUTIFLORA.** (Wight.) A good sized tree, densely covered with stellate down, leaves unequally or rarely equally pinnate, up to more than 2 feet long by 1 foot broad, leaflets 4-6 pair, in age glabrous above except the costa, densely stellato-downy underneath, oblong to lanceolate with a long fine acumination, slightly and irregularly toothed or subentire, 3-6 inches long by 1-2 broad, primary veins prominent 10-14 on each side. *Male* panicles axillary very large and very compound, from much shorter than to about as long as the leaves, flowers very numerous very minute  $\frac{1}{2}$  a line in diameter, stamens 5 exerted beyond the nearly entire staminal tube, calyx hairy, petals glabrous, female flowers not seen, fruit densely stellato-downy, about 1 inch in diameter.—*Aglaiia polyantha*, *Bedd. in. Distrib.*

Travancore hills 2-3500 feet elevation, Asambu hills South Travancore, and Peermede North Travancore, also on the Anamallays (Nelliampathy). I have only male flowers, though plenty of specimens of the hermaphrodite tree in fruit. The figure represents portion of a male panicle in very young bud. Specimens sent to Kew were named *Milnea minutifolia*, *Wight*, probably only a manuscript name, as I cannot find it described in any work; it is a very handsome tree, particularly when young.

PLATE No. CXCIII.

BIXINEÆ.

**ABERIA GARDNERI.** (Clos.) A tree, 16-20 feet, unarmed, branches terete tuberculate, young ones tomentose, leaves ovate oblong or oblongo-lanceolate acuminate subobtusate at the base, entire or dentato-serrate, above pubescent, beneath tomentose, about 4 inches long by 2 broad, petioles about 4 lines long, costa and primary veins reddish, male peduncle short often twin, pedicels 10-20 umbellate about 4 lines long pubescent, calyx-lobes lanceolate acute pubescent, filaments filiform equalling the segments of the calyx, female pedicels 1-3, calyx-lobes as in the male, ovary densely pubescent subglobose, styles diverging  $1\frac{1}{2}$  lines long pilose, berry about 1 inch in diameter. *Clos. in An. des Sc. Nat. Ser. 4, viii. p. 236*;—*Bedd. Flora Sylv. p. xvi. Analytical pl. ii. Roumea hebecarpa, Gard. in Calc. Journ. of Nat. Hist. vol. vii. p. 9*;—*Thw. En. Pl. Zey. p. 18 and p. 400*.

Ceylon, called Katambilla; the acid fruit is eaten.

PLATE No. CXCIV.

**ERYTHROSPERMUM PHYTOLACCOIDES.** (Gard.) A middling sized tree 20-30 feet, branches glabrous terete, leaves alternate rather distant oblongo-lanceolate acuminate acute at the base, very glabrous on both sides, shining above paler beneath, entire or obscurely serrate reticulated with prominent veins,  $3\frac{1}{2}$ -8 inches long,  $1\frac{1}{2}$ -3 inches broad, petioles 3-8 inches long, sulcate above, swollen at the base and apex, stipules minute lanceolate, racemes many-flowered paniculate terminal or axillary, about equalling the leaves, peduncles glabrous; pedicels 2-3 lines long 3 bracteolate at the base, sepals 5 white tinged with red, ovate obtuse concave about 2 lines long, petals white ovato-oblong obtuse ciliate when very young, equalling the sepals, anthers saggitate, ovary oblong glabrous stipitate, capsule globose 3-5 lines in diameter, 3-4 valved nearly to the base, 1-few-seeded. *Gard. in Calc. Journ. of Nat. His. vol. vii. p. 11*; —*Thw. En. Pl. Zey. p. 18*; —*Bedd. Fl. Syl. l. c.*

Ceylon, up to an elevation of 1500 feet.

PLATE No. CXCV.

ACANTHACEÆ.

**STROBILANTHES NEILGHERRENSIS.** (Bedd.) A large shrub, stems subtetragonal hispid as are the leaves on both sides and the petioles with long patent shining-white jointed hairs, leaves somewhat papillose on both sides and at the margin ovate to elliptic quite rounded at the base or attenuated into the petiole acuminate serrate lineolate, 4-7 inches long by  $1\frac{1}{2}$ -3 inches broad, primary veins 4-8 on each side, petioles  $\frac{1}{2}$ - $2\frac{1}{4}$  inches long, spikes terminal and axillary, peduncles  $1\frac{1}{2}$ -4 inches long leafy bracteate and few-flowered at the apex, calyx 5-cleft  $\frac{1}{2}$  down, segments long linear, 4 equal, the 5th a little longer hirsute and ciliate as are the bracts, corol pure white hairy outside and within  $1\frac{1}{2}$  inch long, the lower  $\frac{1}{2}$  inch of the tube suddenly narrowed and very slender, lobes rounded emarginate equal, stamens 4, two much shorter, all on a short tube, filaments very hairy, style hairy, stigma bent, ovary very hairy at the apex.

A common species as I have specimens from the west slopes of the Nilgiris, the Pulneys, Coorg, Palghat hills and Balarangams. *Fig. 1*, upper surface of a leaf, lineolate and hairy, the hairs 1-2 jointed—*2*, leaf under surface—*3*, portion of a petiole hairs 5-6 jointed—*4*, a hair from the petiole.

Dr. Anderson referred my specimens to his *S. papillosus*, but I have lately received a fragment of that plant from Kew, and it is identical with a species which I have found only at Ootacamund, and which is quite distinct from this,—this papillosus is very nearly allied to *S. Perrottetianus*, *Nees.*, (so well figured by Wight, pl. 1513) but is much less hairy and far more scabrous. *Neilgherrensis* is far more hairy than either of them and has white flowers.

PLATE No. CXCVI.

**STROBILANTHES PARVIFLORUS** (Bedd.) Shrubby erect 5-6 feet high, stems terete or sub-tetragonal glabrous, leaves lanceolate attenuated into the petiole acuminate coarsely serrate, glabrous on both sides except a few setæ on the costa and veins above, very densely lineolate above (hence somewhat scabrous) paler and smoother beneath and less lineolate, 6-7 inches long (with the petiole) and about 2 inches broad, primary veins much raised above 6-7 on each side, petioles 6-18 lines long slightly winged sometimes woolly in the axils, spikes axillary or from the old axils 1-3-inches long narrow linear densely imbricate with small ovate bracts more or less densely furnished with long cottony wool which is generally soon deciduous, bracts ovate 4-5 lines long and furnished as are the bracteoles and calyx with gland tipped hairs, bracteoles 2 linear a little shorter than the calyx-segments, calyx-segments subequal or one of them a little longer, all linear, corol white 8-9 lines long glabrous on the outside the lower half of the tube attenuated and very narrow, the upper half campanulate, lobes entire rounded glabrous or a little hairy inside, stamens 4, filaments furnished with very long shining hairs, the inner pair a little shorter, in the bud all monadelphous (on a stamen tube) or sometimes diadelphous, in age always diadelphous. Style long glabrous, stigma subentire or with a minute furcation below the long setaceous lobe, capsules very slightly hairy.

Coorg, about Kiggatnad 3000 feet elevation, also in South Canara. *Fig. 1* shows the upper surface of the leaf densely lineolate and with a few setæ on the costa and veins; *fig. 2* is a young bud opened.

PLATE No. CXCVII.

**STROBILANTHES GOSSYPINUS.** (T. And.) Shrubby erect, stems tetragonous covered with much cottony down, leaves ovate to broad elliptic acute or acuminate entire, above glabrous in age but densely silky when young and sometimes in age at the base only, densely matted with white cottony down beneath, 4-7 inches long by  $2-2\frac{3}{4}$  broad, petioles  $1-1\frac{1}{2}$  inches very woolly, spikes densely cottony axillary and terminal 3-6 inches long, the lower ones branched, bracts lanceolate densely cottony outside glabrous and shining

within, calyx segments linear equal a little larger than the linear bracteoles, all pubescent outside glabrous within, corol 16-17 lines long obliquely infundibuliform suddenly contracted at the base into a very narrow curved tube 3 lines long, pubescent outside and in a broad line down the centre within, stamens 2, filaments very hairy, style long nearly glabrous, stigma oblique, ovary hairy at the apex. *T. Anders. Journ. Linn. Soc. vol. ix. No. 40 p. 466.*

Very common about Sisparah on the west side of the Nilgiris, 4-5500 feet elevation, and I have specimens from other localities on our western mountains; it is very rarely to be found in flower, as it apparently only flowers on reaching maturity (6 or 7 years growth), and then dies; it flowered in October 1869.

PLATE No. CXCVIII.

**STROBILANTHES PANICULATUS.** (T. And.) A rather delicate shrub 5-6 feet high, stem erect terete glabrous, leaves membranaceous lanceolate with a long acumination, the margin subentire or obscurely crenated glabrous on both sides but very densely lineolate over all the lamina and veins, 4-6½ inches long by ¾-1½ inches broad, petioles 4-10 lines long, panicles terminal elongate linear oblong lax at length filiform softly puberulous and also more or less furnished with long white shining simple or very minutely glandular hairs, branchlets opposite short simple or branched furnished with a pair of bracts at the base, the lower bracts about 1 inch long linear glabrous but lineolate, the upper gradually smaller and more ovate softly puberulous and furnished with white glandular hairs, flowers opposite the pedicels filiform hairy and with a pair of bracts at the base (1 to each pedicel), bracteoles generally none rarely present and very minute, calyx cleft to nearly the base into 5 linear subulate hairy segments, 4 equal the 5th much longer (6 lines in length), corol pink 1½ inch long subinfundibuliform and rather curved very finely hairy on the outside, and within furnished with longish hairs down the centre very membranaceous, lobes short rounded rather emarginate, stamens 4 on a very long thin tube, one pair much shorter, stigma 2-cleft 1 division very short the other elongate. *Anders. Journ. of the Linn. Soc. vol. ix. No. 40 p. 483?* *S. rubicundus, And. in En. Fl. Zey. p. 229 (not Nees.)*

Wynaad and Coorg, 2000-3000 feet elevation, common; a very beautiful species. Specimens sent to Dr. Anderson were referred by him to his Ceylon *paniculatus*, which I have not seen, but my plant differs much from his description; if distinct it may be called *S. Wynaadensis*, under which name I originally distributed specimens.

PLATE No. CXCIX.

**STROBILANTHES BOLUMPATTIANUS.** (Bedd.) A large shrub up to 15 feet high, branches 4-sided more or less scabrous, leaves broad lanceolate or ovate acuminate shortly attenuated into the petiole serrate, in age very sparingly hairy on the costa veins and veinlets, on both sides the hairs large shining white and conspicuous (when young much more densely hairy) lineolate above, pruinoso-dotted beneath, primary veins 6-7 on each side, 5-14 inches long by 2½-5 broad, petioles more or less hairy, spikes axillary or terminal or from the old axils globose or oblong, 2-4 inches long by nearly as broad, bracts large densely imbricate orbicular coarsely serrate about 1½ inch each way, more or less hairy on both sides, and more or less ciliate prominently veined, bracteoles 2 linear lanceolate ciliate and sparingly hairy, calyx about as long as the bracteoles cleft to almost the base, segments much imbricate veined and prominently costate equal linear-lanceolate ciliate and hairy, corol campanulate slightly exceeding the bracts, brown in color glabrous or subglabrous, lobes entire, stamens 4, filaments thick equal in length joined into a short tube at the base, style rather short, stigma oblique, capsule oblongo-ovate just equalling the calyx glabrous or (under the lens) very minutely puberulous.

I have only found this splendid species on the Bolampatty hills near Coimbatore in moist forests above the Muti kolam, 4500-7000 feet elevation; it flowers every year.

PLATE No. CC.









Corrado del.

Wengert del.

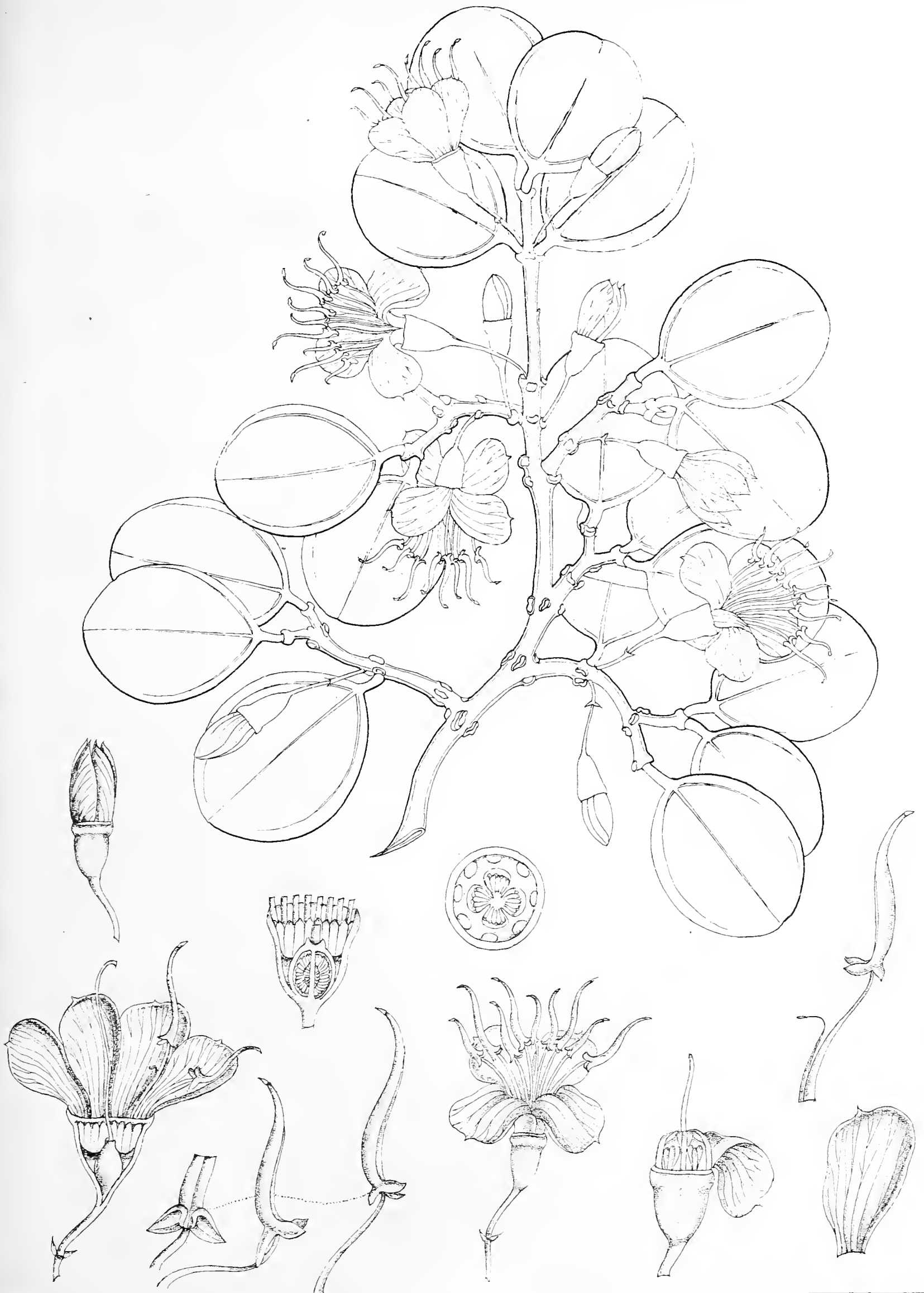
*Trigonostemon nemoralis* (Thunb.)







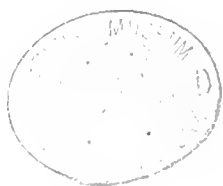








*Hopea Malabarica* (Bedd.)





*Derris eulata*, Bedd

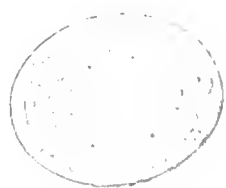
Dunphy Del.







*Semecarpus auriculata* (Beda)









*Parinarium Travancoricum* (Bedd.)





*Timonius gambosella* (Garten)

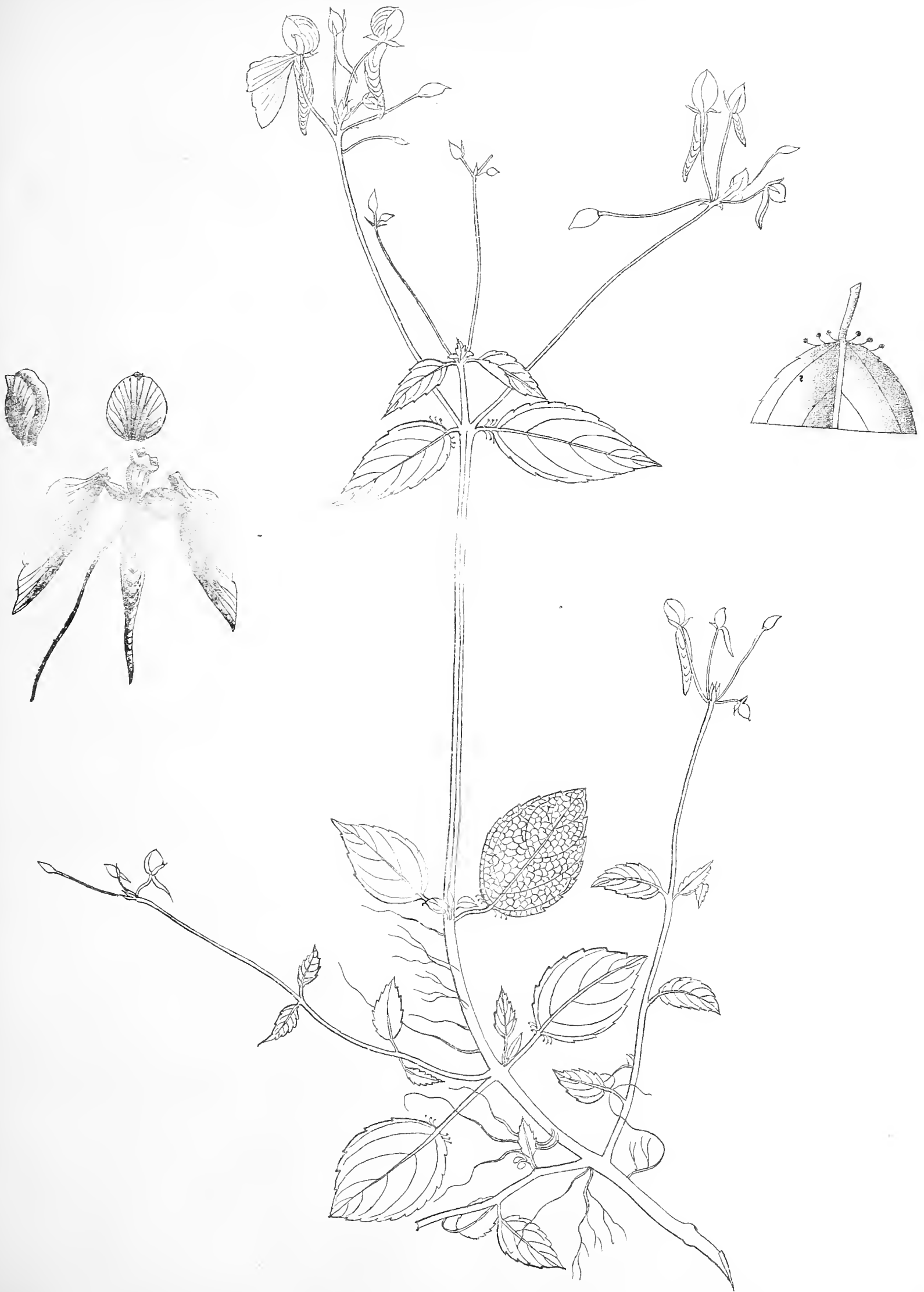




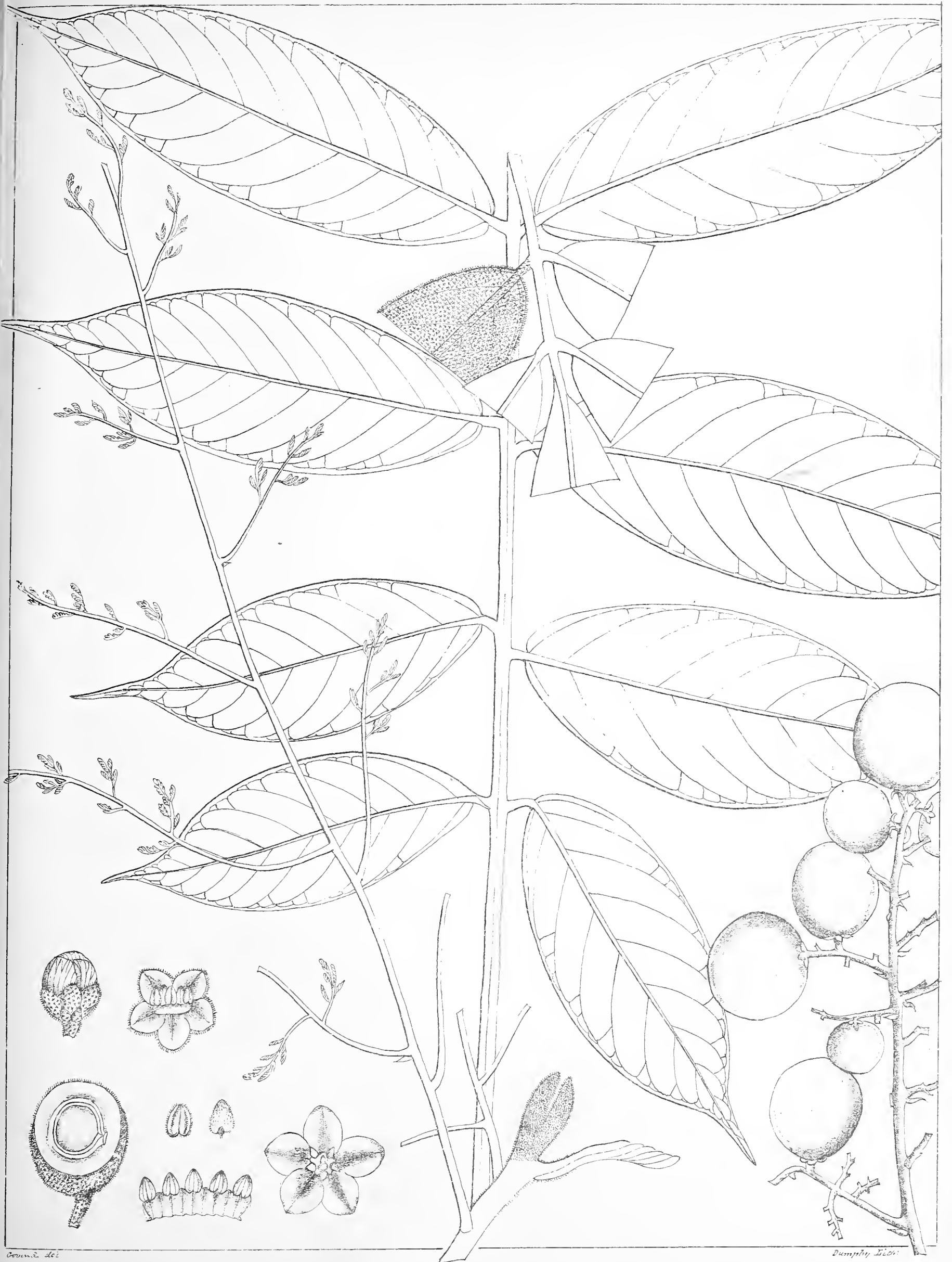


*Hedyotis capitata* (Bedd.)



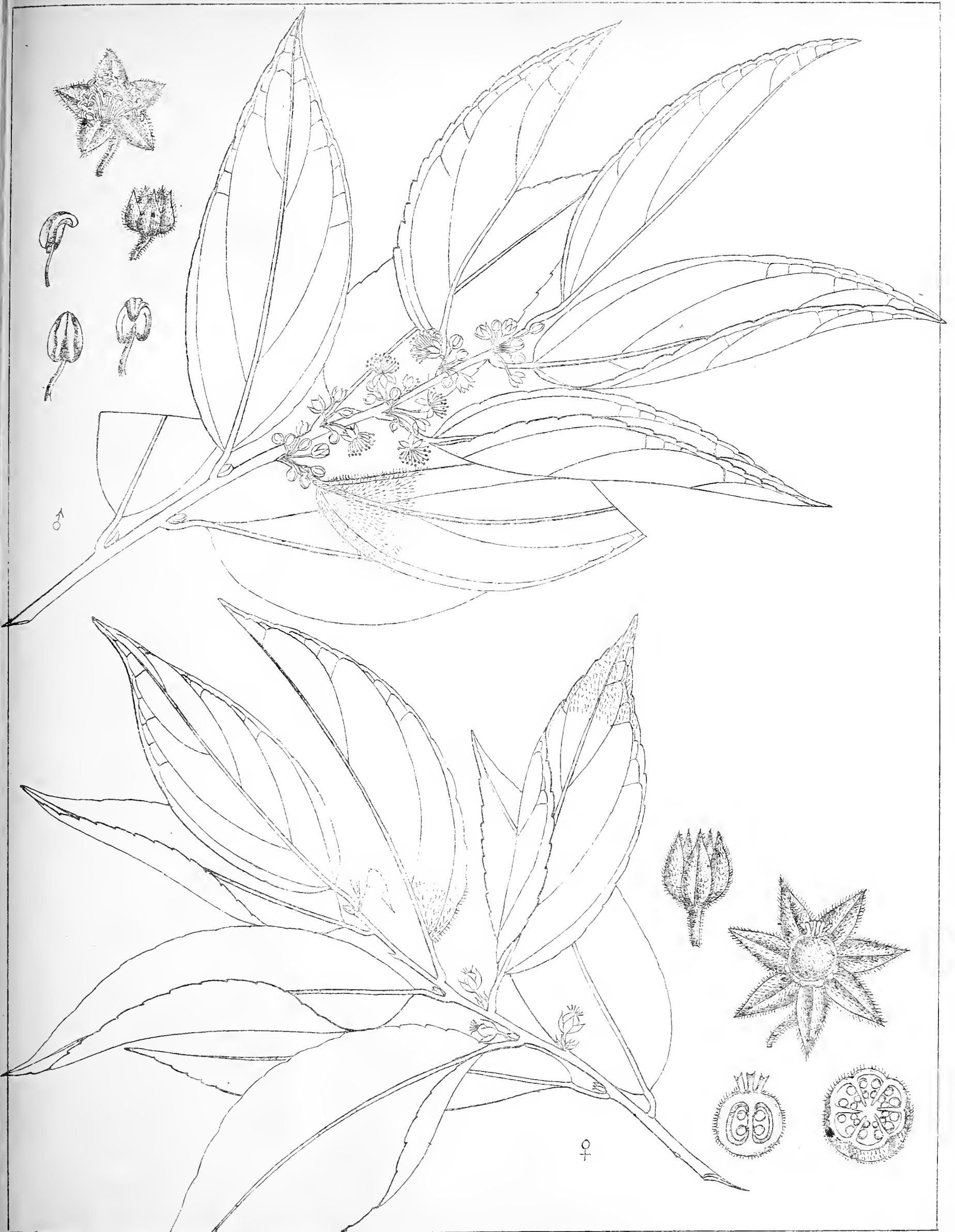






*Aglaia minutiflora* Wight.





*Aleria Gardneri*, (Alos)







Gouardo del

Dampier, L. del.

*Erythrospermum phytolaccoides* (Gardn.)





*Strobilanthes Neilgherrensis* (Benth.)





Comma del

*Thalictrum parviflorum*, Bodd.

Dumortier Del.













*Strobilanthes paniculatus* (T. And.)





Conrad de L.

Dec. 1874 L. 106

*Strobilanthes Bolampatriensis* (Bedd.)



**STROBILANTHES PAPILLOSUS.** (T. Anders.) A large shrub, stems more or less 4-angled, the younger ones acutely so, exceedingly rough with short harsh hairs, leaves ovate acuminate crenate very asperous on both sides with short harsh hairs rising from numerous papillæ 4-6 inches long by 2-3 broad, petiole about 2 inches long channelled on the upper side, spikes terminal and axillary short leafy, the peduncles 1-1½ inches long, bracts leafy lanceolate scabrous, bracteoles and calycine-segments linear ciliate, 2 of the latter larger than the other three, corol bluish 1½-2 inches long glabrous on the outside somewhat hairy in the centre inside the tube more or less recurved suddenly narrowed in its lower half, lobes equal rounded, stamens 4, submonadelphous, the two centre ones shorter, style slightly hairy. *Anders. Journ. Linn. Soc. Vol. IX, p. 468.*

Ootacamund, common in sholas at 7000 feet elevation, allied to *S. Perottetianus*.

I rather think Dr. Anderson has confounded 2 species under this name, and that his description is partly taken from *S. Neilgherrensis*. (The dissections are taken from living specimens.)

#### PLATE CCI.

**STROBILANTHES EXTENSUS.** (Nees.) A small shrub, stems 4-angled slightly hairy or subglabrous below, glandularly hairy upwards, leaves ovate often cordate at the base acuminate coarsely serrate slightly rough and hairy on both sides, the lower ones petioled the upper sessile 1½-2 inches long by 1-1½ broad, petioles channelled 3-9 lines long the pair generally unequal. Spikes terminal and from the upper axils forming a sort of a panicle, bracts small and very early deciduous, bracteoles linear much smaller than the calyx early deciduous, subscariosae. Calyx segments rather unequal one of them generally longer than the others all linear and rounded at the apex glanduloso-hairy as are the bracteoles, corol deep purple 1-1½ inch long, tube a little contracted at its base, stamens 4 submonadelphous, the tube very slightly hairy, the filaments glabrous the inner two shorter, style slightly hairy below, ovary puberulous at its apex. *Nees. DC. Prod. xi. 195.*

Western Mysore, near Manjeerabad, also in Sylhet, Assam and Khasya, and cultivated in the Lal Bagh Gardens at Bangalore.

#### PLATE CCII.

**STROBILANTHES IXIOCEPHALUS.** (Benth.) A small undershrub, stems glabrous or subglabrous, the small floriferous ramuli or leafy spikes setose with long silky white hairs, leaves membranaceous lanceolate acuminate crenate attenuated at the base into the petiole densely lineolate and sparingly setose on both sides, up to 6 inches long of which the petiole is sometimes 2 inches, 1-1½ inches broad. Spikes axillary, terminal or leaf-opposed, leafy below and densely setose, the heads few flowered oblong or ovate, the bracts much imbricate ovate leafy about ½ as long as the flower and with the bracteoles and calyx setose with gland tipped rather viscid hairs, bracteoles linear shorter than the calyx, calycine segments linear subequal. Corol white about 1½ inches long, the tube much narrowed in its lower half, glabrous outside slightly setose within. Stamens 4 monadelphous, the 2 middle ones much shorter, filaments and style slightly hairy towards the base. *Benth. in Walps. Ann. Vol. III. p. 218.*

South Canara, in the plains about Bellatangady not far from Mangalore, also on the ghats at no great elevation. My specimens were identified by Dr. Anderson.

#### PLATE CCIII.

**STROBILANTHES ANCEPS.** (Nees.) A small undershrub, stems more or less strigose bluntly 4-sided, leaves membranaceous very variable and often the pair very unequal in size, ovate to elliptic acute or with a long acumen, attenuate at the base entire or obscurely toothed, up to 7 inches long of which the petiole is sometimes 1½ inches, ciliate at the margin and sparingly hairy on both sides, particularly on the costa and veins and furnished with minute shining glands. Spikes axillary and terminal generally naked and simple, sometimes leafy and branched, generally very flat and winged and much ciliate, flower heads short subglobose or cylindric, bracts large leafy ovate furnished with glands densely ciliate and more or less hairy as are the bracteoles and calyx, bracteoles linear, calycine segments equal or subequal linear, flowers white very slightly hairy about 1 inch long, the tube narrowed below, stamens 4 monadelphous the middle 2 shorter, the longer filaments hairy, style glabrous. *Nees. in DC. Vol. XI. p. 189. S. punctatus, Nees l. c. p. 182.*

Anamallays, South Canara ghats, Tinnevely ghats, also in Ceylon. Easily recognized by its flat generally winged peduncles.

*Ruellia ? punctata*, Wight Icones 1563, is a true *Strobilanthes*, and may retain the name of *punctatus*; it is not mentioned by Anderson; it is a large shrub with white flowers and very scabrous leaves, the hairs arising from harsh papillæ. Wight's figure is very characteristic, so I shall not refigure it; it is very common on the Pulney hills 4000 feet, and I have found it on the Anamallays, and elsewhere along our ghats.

#### PLATE CCIV.

**STROBILANTHES VIOLACEUS.** (Bedd.) A large shrub, stems bluntly 4-angled glanduloso-hirsute above, leaves thickly membranaceous ovate to elliptic long petioled the pair often unequal acute or acuminate rather suddenly attenuated at the base, up to 8 inches long (of which the petiole is sometimes  $2\frac{1}{2}$  inches) by  $3-3\frac{1}{2}$  broad harsh with much short pubescence on both sides, primary veins very regular and prominent, and the transverse veinlets very prominent beneath, panicles terminal rather lax glanduloso-pubescent, bracts at the ramifications small oblongo-linear, calycine bracteoles linear shorter than the calyx and like it glanduloso-pubescent, calyx-segments linear equal or subequal, flowers  $1\frac{1}{2}$  inches long deep violet-purple, tube scarcely contracted except at the very base glabrous outside, hairy within, stamens 4 the 2 middle ones much shorter, filaments and style hairy towards the base.

Abundant about the head of the Sisparah ghat (Nilgiris), a very beautiful species; it is very rarely to be met with in flower.

#### PLATE CCV.

**STROBILANTHES SEXENNIS.** (Nees.) A very large shrub up to 25-30 feet, old trunks up to  $2-2\frac{1}{2}$  feet in girth, the younger branches somewhat 4-angled and often glanduloso-pubescent, leaves lanceolate acuminate sessile and amplexicaul or decurrent down a short petiole, coarsely serrate quite glabrous or slightly hairy on both sides, always densely lineolate above, up to 17 inches long by 5 broad, but often only 8-9 inches long, veins not so numerous or regular as in violaceus, transverse veinlets inconspicuous, panicles terminal, scarcely lax glanduloso-pubescent as are the calyx bracts and bracteoles, bracts broad ovate, bracteoles linear lanceolate or spatulate equal in length to and broader than the narrow linear equal calycine-segments, flowers white, corol generally much curved about  $1\frac{1}{4}$  inch long, tube scarcely contracted a little hairy inside, stamens 4 monadelphous the two middle ones much smaller, anthers all rounded at the base, filaments and style slightly hairy, ovary glabrous, capsule glabrous oblong acuminate. *Nees in DC. l. c. p. 187.* *S. homotropus, Nees. l. c.* *S. argutus, Nees. l. c. 188.* *S. cerinthoides, Nees. in Herb. Hook.*

Very common at Ootacamund and elsewhere on the Nilgiris at the higher elevations, also on the Pulneys, &c., 5000-7000 feet, and abundant at high altitudes in Ceylon; it is the largest of all our species, and in the Kookal shola on the Pulneys it grows to be quite a small tree with a hard woody trunk nearly 3 feet in girth.

#### PLATE CCVI.

**STROBILANTHES GRACILIS.** (Bedd.) A very large shrub, branches glabrous terete, leaves lanceolate acuminate serrate sessile, auricled at the base and amplexicaul densely lineolate but otherwise quite glabrous or with a few weak setæ, up to 8-9 inches long by 2 inches broad, panicles terminal lax glabrous or slightly viscous, bracts very small caducous, bracteoles linear shorter than the calyx, calycine-lobes linear equal and with the bracteoles slightly glanduloso-pubescent or almost quite glabrous, flowers rather remote white tinged with lilac about 1 inch long, tube scarcely contracted, stamens 4 monadelphous the two inner a little shorter, filaments hairy, anthers sagittate at the base. Style slightly hairy, ovary glabrous, capsule ovoid glabrous pointed. *Bedd. in Trans. Linn. Soc. Vol. XXV. not Anders.* *S. Beddomei, T. Ander. Journ. Lin. Soc. Vol. IX. p. 482.*

Anamallay mountains, 4000-5000 feet elevation, nearly allied to Sexennis.

#### PLATE CCVII.

**STROBILANTHES ANDERSONII.** (Bedd.) A very large shrub up to 20 feet high. Stem terete hirsute, leaves sub-membranaceous ovate acuminate serrate up to 9-10 inches long by 5 broad, the pair often unequal and on petioles of different lengths, petioles  $\frac{1}{2}$ -2 inches long hirsute, spikes axillary  $2-2\frac{1}{2}$  inches long, flowers in short oblong dense heads, bracts large ovate obtuse ciliate but otherwise glabrous densely imbricate, bracteoles and calycine-segments all about equal linear-lanceolate ciliate. Corol glabrous pale blue  $1\frac{1}{4}$  inch long, stamens 4 monadelphous the 2 middle ones a little shorter, filaments glabrous, anthers sagittate, ovary and style glabrous. *Bedd. Lin. Trans. Vol. XXV. p. 222.*

Anamallay mountains 6000 feet in moist woods, allied to the next species but with larger flowers.

#### PLATE CCVIII.

**STROBILANTHES CALYCINUS.** (Nees.) A shrub 4-5 feet, stems strigose or glabrous, leaves oval or ovate acuminate attenuated at the base crenate hirsute, 6-7 inches long (of which the petiole is  $\frac{1}{2}$ - $1\frac{1}{2}$  inches) by  $2-2\frac{1}{2}$  inches broad, spikes axillary  $2-2\frac{1}{2}$  inches long (of which the peduncle is  $\frac{1}{2}$  to 1 inch) erect or suberect oval, bracts much imbricate large suborbicular or obovato-cuneate crenate glabrous or slightly glanduloso-hirsute, bracteoles and calycine segments narrow lanceolate all about equal and nearly or quite



equalling the corol, corol dull yellowish red glabrous outside and within except a small tuft of hair, the tube only contracted at its very base, stamens 4 monadelphous slightly exserted, the two middle ones a little shorter, filaments glabrous, ovary and style glabrous. *Nees DC. l. c. p. 186. S. coloratus, Nees. l. c.*

Ceylon, central provinces, at 7000 feet elevation.

#### PLATE CCIX.

**STROBILANTHES AURICULATUS.** (Nees.) A much branched shrub, branches 4-angled slightly scabrous towards the apex, leaves elliptic acuminate serrate with the base cuneiform auricled and amplexicaul, 4-7 inches long by  $1\frac{1}{2}$ -2 inches broad, slightly hirsute on both sides. Spikes axillary and terminal 1-4 inches long narrow linear, the peduncles tetragonal, bracts densely imbricate orbicular cuspidato-mucronate, hirsute or glanduloso-hirsute, bracteoles none. Calycine segments somewhat unequal linear obtuse glanduloso-hirsute, flowers large  $\frac{3}{4}$  to 1 inch pale blue, tube much contracted at its base, stamens 4 slightly monadelphous the 2 inner ones shorter, filaments hairy. *Nees l. c. p. 191.*

Common about the Jubbulpore and Nagpore country, but I have never seen it further south. Common in a cultivated state in gardens.

#### PLATE CCX.

**STROBILANTHES CILIATUS.** (Nees.) A small shrub, branches terete or 4-sided fimbriate at the joints, leaves elliptic acuminate attenuated into the petiole serrate densely lineolate above and with a few setæ on the costa and veins, lineolate and glabrous below subcoriaceous, 6-7 inches long by 2 broad. Spikes axillary 2-4 inches long generally simple with the peduncle bracteate jointed and refract below the middle, sometimes somewhat branched and leafy, flower heads small narrow oblong, flowers small white spotted with lilac about 1 inch long, bracts ovate or nearly orbicular pointed cucullate much imbricate lineolate, bracteoles a little smaller than the calyx linear-lanceolate, calycine lobes equal or subequal linear-lanceolate glabrous or with a few hairs, corol with a very narrow tube below suddenly campanulate below the lobes very slightly hairy inside, lobes rounded, stamens 4 monadelphous the two inner a little shorter, filaments hairy below glabrous above, anthers purple, ovary and style glabrous. *Nees l. c. p. 183;—Wight Icones tab. 1517. Strobilanthes Warreensis, Dalz. in Hook. Journ. of Bot. ii. 341.*

This is found about all our ghats from the very foot up to about 4000 feet, and it flowers I believe every year. I have re-figured this although Dr. Wight published a drawing, as his is not characteristic and scarcely to be recognized.

#### PLATE CCXI.

**STROBILANTHES BARBATUS.** (Nees.) A large glabrous shrub often up to 12-15 feet, with numerous exposed roots from the lower part of the stem, branches 4-sided often completely and very broadly winged, sometimes quite naked, leaves lanceolate, acute or acuminate crenate or subentire coriaceous glabrous but densely lineolate on both sides, somewhat shining above paler beneath, 6-10 inches long by  $2\frac{1}{2}$ -4 broad, petioles naked or winged 1-1 $\frac{1}{4}$  inches long, spikes axillary and terminal 1-2 inches long often leafy at the base, bracts densely imbricate rhomboid-cuneate long cuspidato-acuminate lineolate and coarsely ciliate but otherwise glabrous, bracteoles similar to the bracts but a little smaller and narrower, flowers small, calyx 5-cleft to the middle the segments acuminate, corol white about 1 inch long the tube much contracted at the base and suddenly campanulate just below the lobes, lobes long ciliate and very hairy within with white hairs, stamens 4 submonadelphous exserted, the middle 2 a little shorter, filaments hairy, sometimes the rudiment of a fifth stamen is present, ovary and style glabrous. *Nees. l. c. 179. Strobilanthes tetrapterus, Dalz. in Hook. Journ. of Bot. 1850. Vol. II. p. 342.*

One of the commonest species on our moist mountains up to 3000 feet elevation, from Canara down to Cape Comorin, forming often the chief undergrowth; in the Anamallays it covers miles of country; it only flowers about every 7th year, and then dies down; winged and wingless forms are to be found on the same plant.

#### PLATE CCXII.

**STROBILANTHES CAUDATUS.** (T. Anders.) A shrub 4-5 feet, stems glabrous below hirsute towards the apex; leaves lanceolate or linear-lanceolate with a very long caudate acumination, lineolate on both sides, furnished above with a few distant setæ, slightly hairy on the veins beneath, entire or obscurely crenate, 4-7 inches long by 1-1 $\frac{1}{2}$  broad, petioles 2-8 lines long, spikes axillary simple or branched, heads small subglobose 3-6 flowered, bracts bracteoles and calycine segments linear all densely villous and ciliate



with very long white or brown often gland tipped hairs all subequal in length or the bract twice as long as the others and the calycine segments more or less unequal. Corol about 1 inch long whitish with a tinge of red, stamens 4 scarcely monadelphous included, the 2 middle ones a little shorter, style glabrous, ovary a little hairy at the apex. *Anders. in. Thw. Pl. Zey. p. 228.*

Common on the Brumagherries in the Wynaad at 3500 feet elevation, also in Coorg and South Canara (Kudra Mukh), and in Ceylon (Hantani, at 2000-3000 feet.)

PLATE CCXIII.

**STROBILANTHES JEYPORENSIS.** (Bedd.) A large shrub, branches obtusely 4-angled a little hairy above glabrous below, leaves submembranaceous broadly ovate with a long acumination suddenly attenuated at the base crenate, densely lineolate above and furnished with a few setæ, slightly pubescent below with longish inconspicuous hair, 6-7 inches long without the petiole by about 4 broad, petioles 3 inches long. Spikes axillary trifold or single 3-4 inches long linear lanceolate flowered from nearly the base, bracts bracteoles and calyx glanduloso-pubescent and long subulato-acuminate, bracts lanceolate 3-nerved, bracteoles linear a little shorter than the calyx, calycine segments distinct to the base linear, flowers small, corol about  $\frac{1}{2}$  an inch long white, tube contracted only at the very base, stamens 2 monadelphous, filaments hairy, style and ovary glabrous, capsule smooth mucronate much shorter than the calyx.

• The Gudam hills near Golcondah (Vizagapatam district), 2500 feet elevation, also mountainous tracts in the Jeypore country.

PLATE CCXIV.

**STROBILANTHES CANARICA.** (Bedd.) A rigid shrub 3-4 feet. Stems hirsute obtusely 4 sided, leaves coriaceous ovate pointed prominently veined entire or subentire on the margins, when young densely lanate with white hair, in age sparingly hirsute on both sides or nearly glabrous above, 2-3 inches long by about  $1\frac{1}{2}$  inches broad, petioles 3-6 lines long, spikes short dense terminal and from the upper axils generally crowded several together in each axil shorter than the leaves oblong and flowered from the base, bracts ovate hirsute, bracteoles linear-lanceolate hirsute shorter than the calyx, calyx cleft half down the segments linear-lanceolate hirsute, corol white puberulous outside a little hairy within, about  $\frac{3}{4}$  inch long, the tube contracted only at its very base, stamens 2 monadelphous, sometimes rather unequal, anther cells somewhat pointed at the base, filaments a little hairy. Style hairy, ovary glabrous.

South Canara, on the Kudra Mukh mountain, elevation 6000 feet.

PLATE CCXV.

**STROBILANTHES CONSANGUINEUS.** (Nees) A large shrub, stems somewhat 4-angled glabrous or a little hairy, leaves membranaceous or sub-membranaceous ovate acute or acuminate, suddenly attenuated at the base, prominently and very regularly veined, glabrous on both sides but densely lineolate, or hairy beneath, quite entire or more or less crenate, without the petiole 4-5 inches long by  $2\frac{1}{2}$ - $3\frac{1}{2}$  inches broad, petioles up to 4 inches long the pair often very unequal, spikes axillary 3-4 inches long very various from simple and filiform to much branched, and from nearly glabrous to densely hirsute, flowers white or pale blue about  $\frac{2}{3}$  inch long, bracts ovato-lanceolate nerved glabrous or a little hairy or densely hirsute, bracteoles shorter than the calyx linear lanceolate, calyx cleft  $\frac{1}{2}$  down, segments linear-lanceolate acute, corol-tube contracted at the base, glabrous or puberulous outside, stamens 2 submonadelphous, filaments glabrous or a little hairy, style hairy, ovary hairy at the apex. *Eudopogon consanguineus*, *hypoleucus*, and *amomum*, *Nees. l. c. p. 104.*

A very common species on the ghats of the Nilgiris and Pulneys and other mountainous parts of our Western ghats, from the foot up to 5000 feet. One variety common in the Bolumpetty valley, has the spikes much paniculate and densely hirsute, the variety figured is the commonest form.

PLATE CCXVI.

**STROBILANTHES NIGRESCENS.** (T. Anders.) A shrub 4-5 feet, stems erect tetragonal, leaves lanceolate acuminate serrate 4-5 inches long by  $1-1\frac{1}{2}$  broad glabrous on both sides but densely lineolate above, petioles 8-18 lines long. Spikes axillary and terminal hispid shorter to a little longer than the leaves, bracts lanceolate with a long attenuated point 3-nerved glanduloso-hispid a little longer than the calyx, bracteoles linear and with the calyx glanduloso-hispid, calyx cleft down about  $\frac{2}{3}$ rd, segments acute, corol about 1 inch long pale purple, tube contracted at the base, lobes ciliate. Stamens 2 submonadelphous, filaments glabrous, style hairy, ovary glabrous. *Anders. l. c. p. 226.*

Ceylon, Ambagamwa district, 3000 feet elevation.

PLATE CCXVII.

**STROBILANTHES DEFLEXUS.** (Anders.) A shrub 4-5 feet, stem glabrous somewhat 4-angled, leaves narrow-elliptic caudate serrate densely lineolate but otherwise glabrous, 2-3 inches long of which the petiole is sometimes 1 inch, 6-9 lines broad, peduncles axillary solitary or twin thickened towards the apex naked deflex, heads capitate 6-8 lines long, bracts foliaceous acute glabrous 6-8 at the apex of the peduncle, bracteoles filiform, calyx cleft to nearly the base, segments linear-lanceolate ciliate and sometimes pilose, corol pale-purple 8 lines long the tube contracted at the base, stamens 2 submonadelphous, filaments glabrous, ovary and style glabrous. *Anders, in. Thw. En. Pl. Zey. p. 227.*

Ceylon, Hantani, at 4000 feet elevation.

PLATE CCXVIII.

**STROBILANTHES THWAITESII.** (T. Anders.) A shrub, branches tetragonal scabrous, leaves submembranaceous elliptic or ovato-elliptic acuminate serrate asperous above, hirsute beneath, 5-6 inches long  $1\frac{1}{2}$ -2 inches broad, petiole 3-6 lines long, peduncles tetragonal about as long as the petioles drooping simple or trifid at the apex, heads capitate 1-1 $\frac{1}{2}$  inches long ovate about 3-flowered, bracts lanceolate acuminate bullato-corrugate ciliate 7-10 lines long, bracteoles much smaller linear acute ciliate, calyx cleft to the middle, segments linear-lanceolate ciliate, corol 1 inch long white glabrous outside a little hairy within. Stamens 4 included the 2 middle ones much shorter, filaments and style hairy. *Anders. l. c. p. 227.*

Ceylon, Ambagamwa district.

PLATE CCXIX.

**STROBILANTHES HELICOIDES.** (Nees.) A shrub 2-3 feet high, stem leaves ovato-oblong acuminate lanceolate glabrous coarsely and sharply serrate, 5-6 inches long by 2-2 $\frac{1}{2}$  inches broad, petioles about 3 lines long, panicle-leaves ovate or ovato-lanceolate smaller than the stem leaves and gradually dwindling into bracts, panicles cymose very long slender lax filiform and flexuose, pedicels slender 2-3 times longer than the calyx, bracts small lineolate, bracteoles linear-subspathulate shorter than the calyx, calyx cleft to nearly the base 3 $\frac{1}{2}$  lines long, segments linear-lanceolate, lineolate and furnished with a few gland-tipped hairs as are the bracteoles, flowers violet 1 inch long, tube inflated, lobes short rounded. Stamens 4 included submonadelphous, the 2 middle ones shorter, filaments and style hairy, ovary glabrous, capsule glabrous pointed about 6 lines long. *Leptacanthus helicoides, Nees. l. c. 170.*

Ceylon, Hantani and Ambagamwa districts, up to 3000 feet elevation.

PLATE CCXX.

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CORRECTIONS IN THE NOMENCLATURE OF PREVIOUS NUMBERS.

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Plates 14, 15, 16, & 17. For *Serissa* read *Saprosma*.

18.....For *Nauclea tubulosa* read *Stepheyne tubulosa*.

20.....For *Gardenia* read *Byrsophyllum*.

37 & 38.....For *Griffithia* read *Randia*.

39.....For *Borreria* read *Fergusonia*.

40.....For *Discospermum* read *Diplospora*.

41 & 42.....For *Sageræa* read *Bocagæa*.

46.....For *Anaxagorea Zeylanica, H. f. et T.*, read *Anaxgorea Luzonensis, A. Gray*.

71.....For *Orophea coriacea, Thw.*, read *Bocagæa coriacea, Thw.*

72.....For *Orophea obliqua, H. f. et T.*, read *Bocagæa obliqua, H. f. et T.*

75.....For *Popowia ramosissima, Bedd.*, read *Popowia Beddomeana, H. f. et T.*

96.....For *Stylocoryne*, read *Byrsophyllum* (the sterile ovary is very badly represented in the lithograph.)

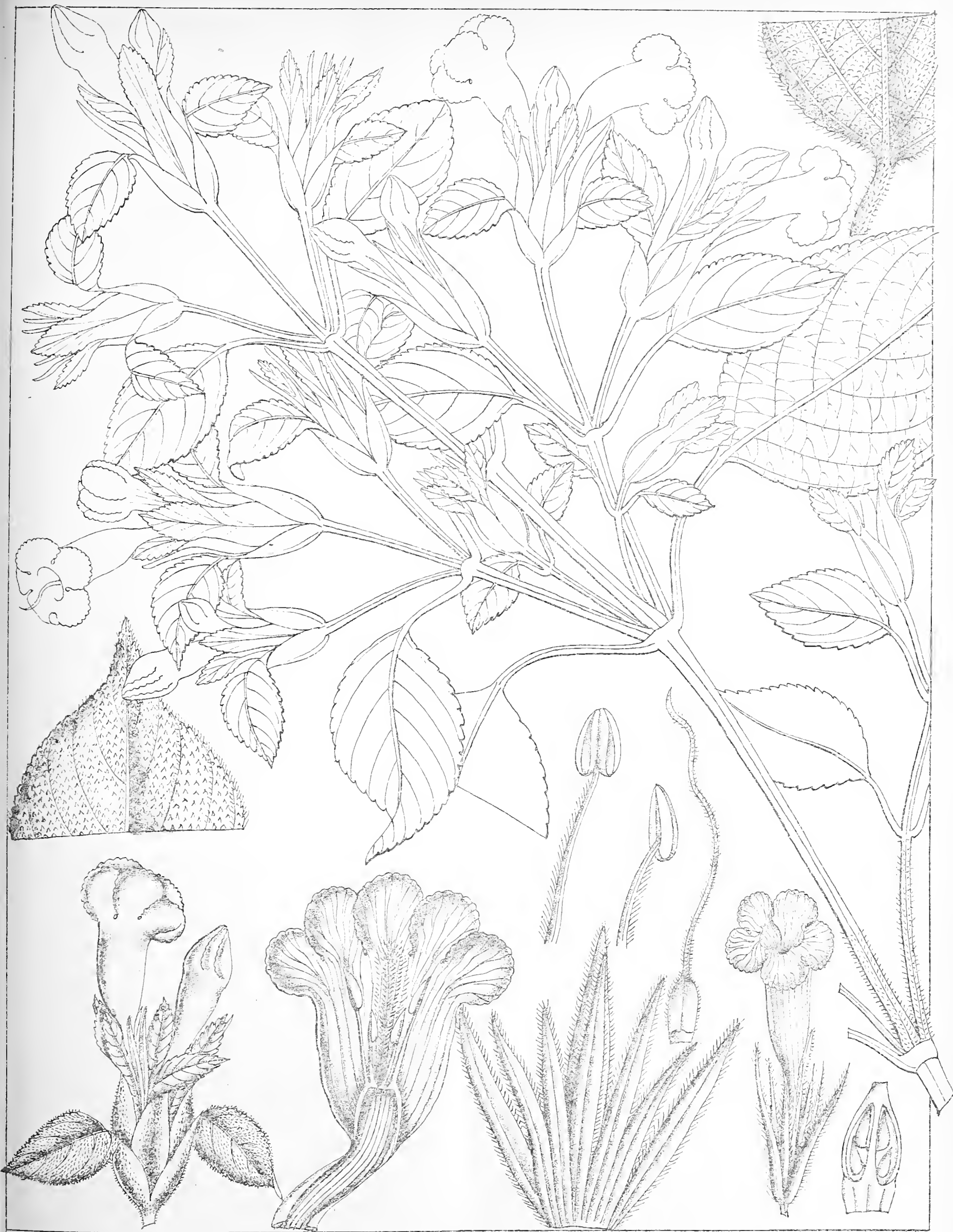
114.....For *Zizyphus Wynadensis, Bedd.*, read *Ventilago Bombaiensis, Dalz.*

123.....For *Diospyros calycina, Bedd.*, read *Diospyros foliolosa, Wall.*

133.....For *Diospyros microphylla, Bedd.*, read *Diospyros buxifolia, Miq.*

163.....For *Memecylon amabile, Bedd.*, read *Memecylon terminale, Dalz.*



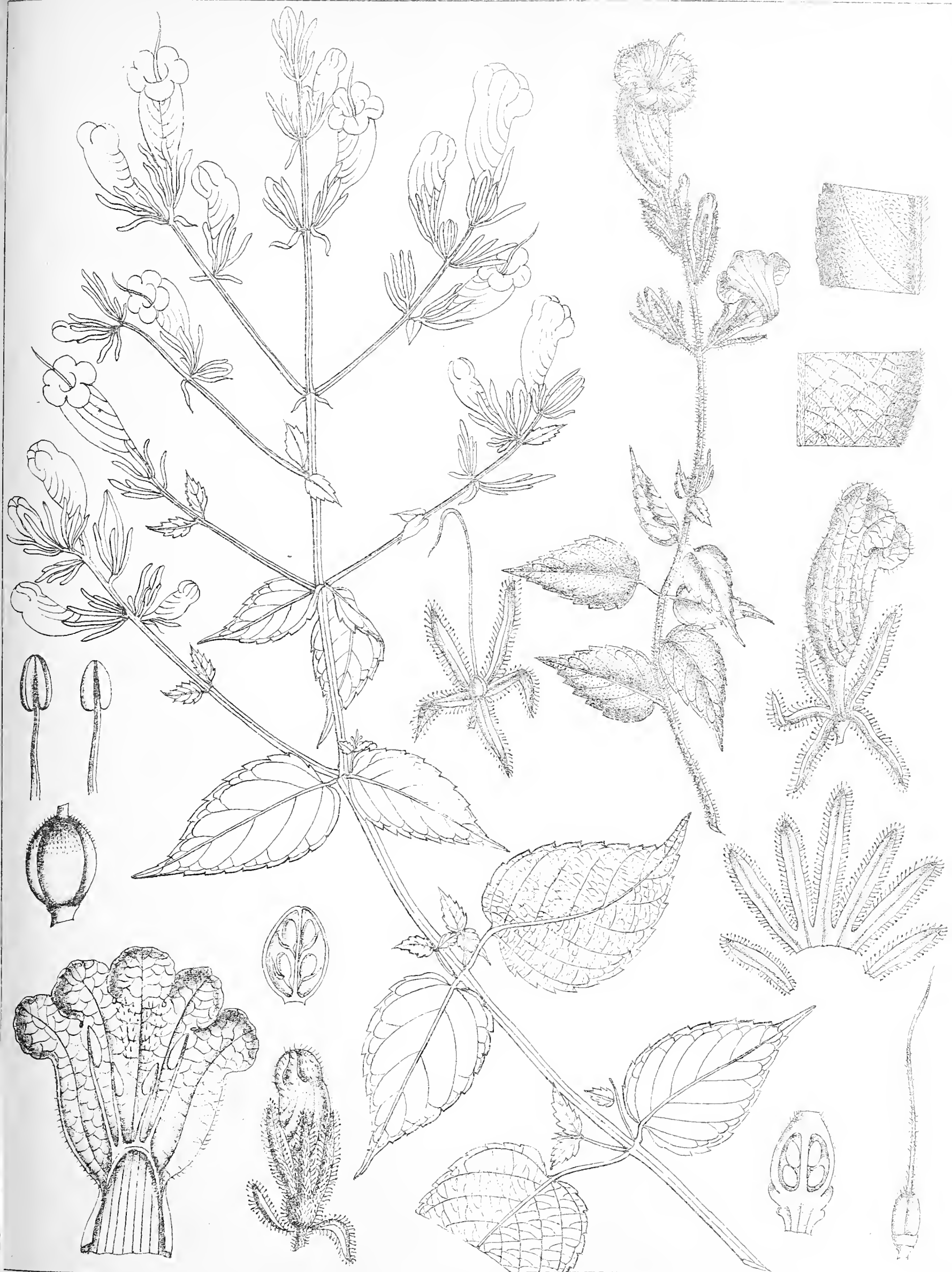


Gravido del

Dumortier & Schimper

*Strobilanthes papillosus* (Anders.)











W. & A.

Dunsmuir, I. 1881.

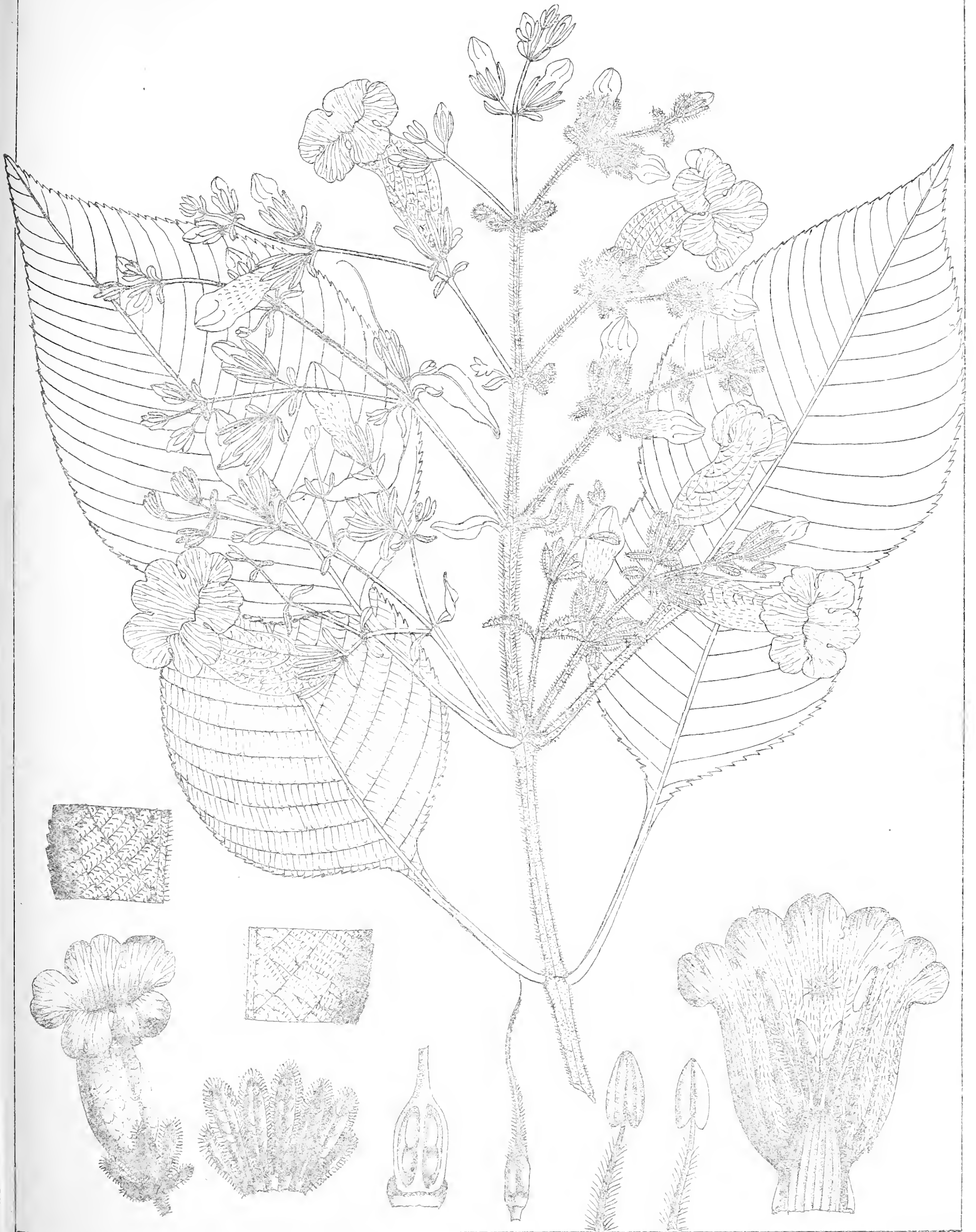
*Triobolanthus ixiocephalus* (Benth.)











Davidson del.

Barthol. Lith.

*Strobilanthes violaceus*, Bedd.





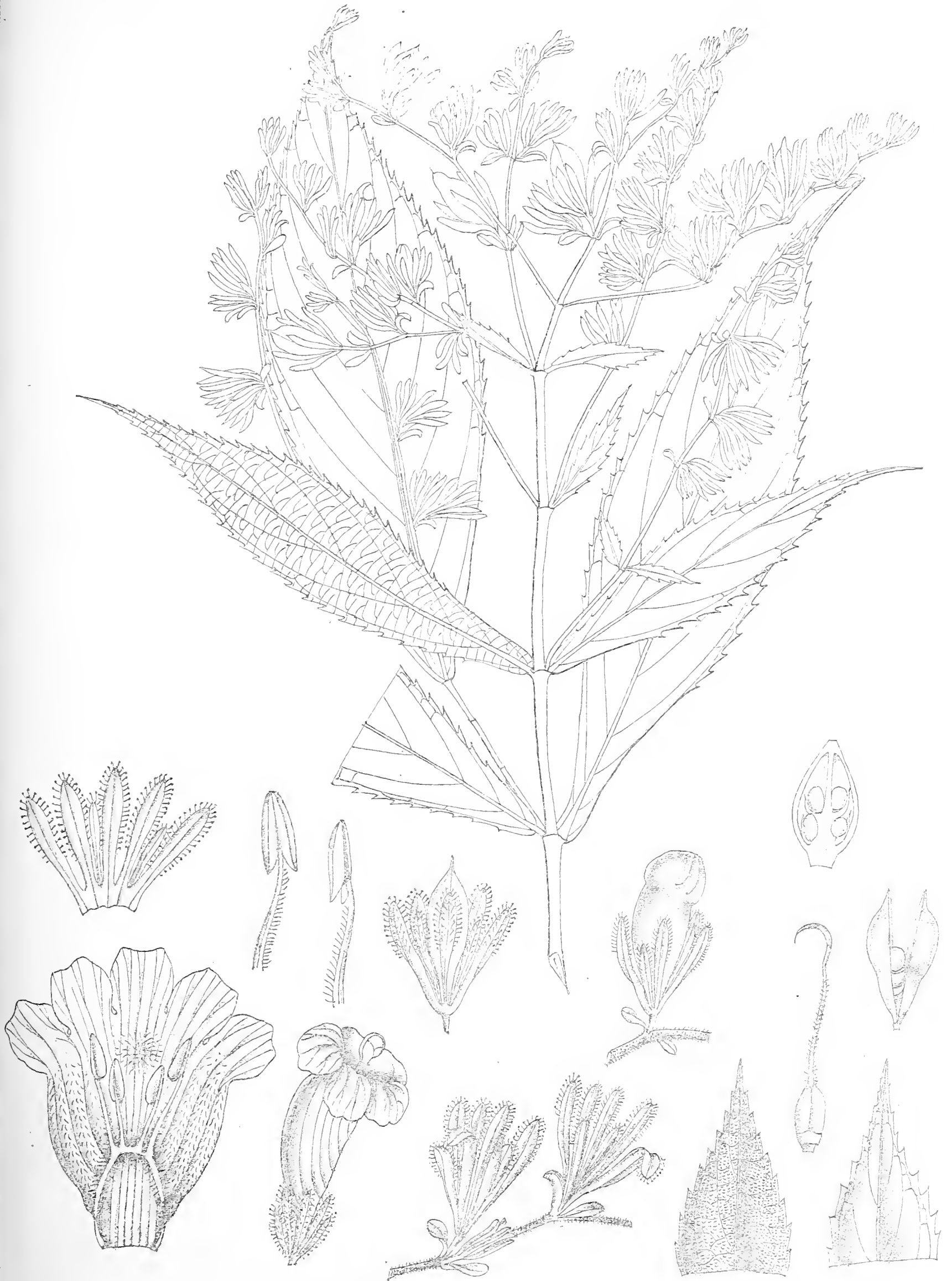
Griseb. det.

W. G. B. det.

*Strobilanthes saxatilis* (Ves.)

















*Prothium rugosum* Desf.

Griseb. 1811

Griseb. 1811





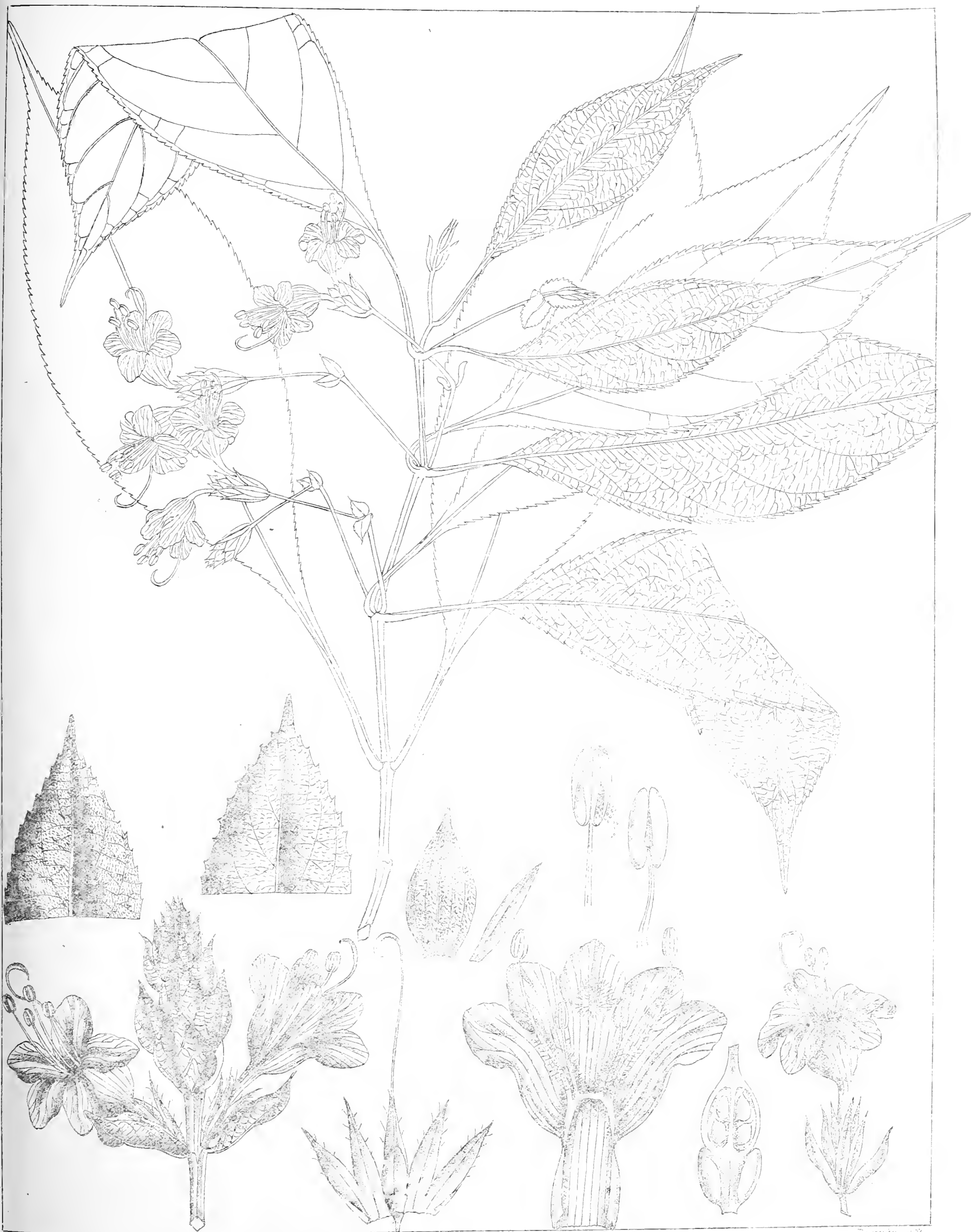
Grounds etc.

Chrysophyllum

*Strobilanthes auriculatus*, / Nees /







*Strobilanthes ciliatus, p. Vies.*

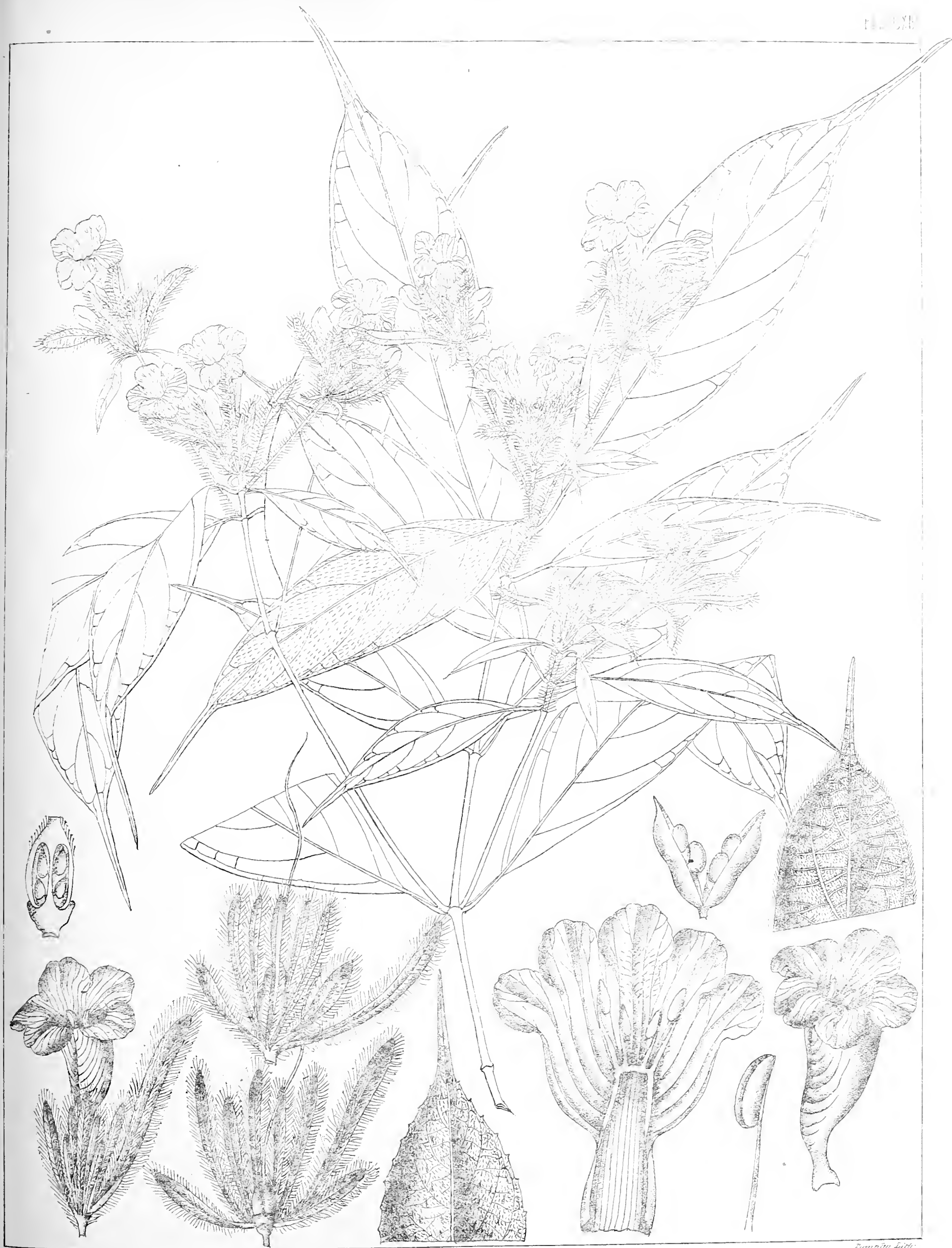






*Strobilanthes barbasus* Des





*Strobilanthes caudatus, Anders*





Bombay 1882

*Strobilanthes jeyiporensis* Wedd

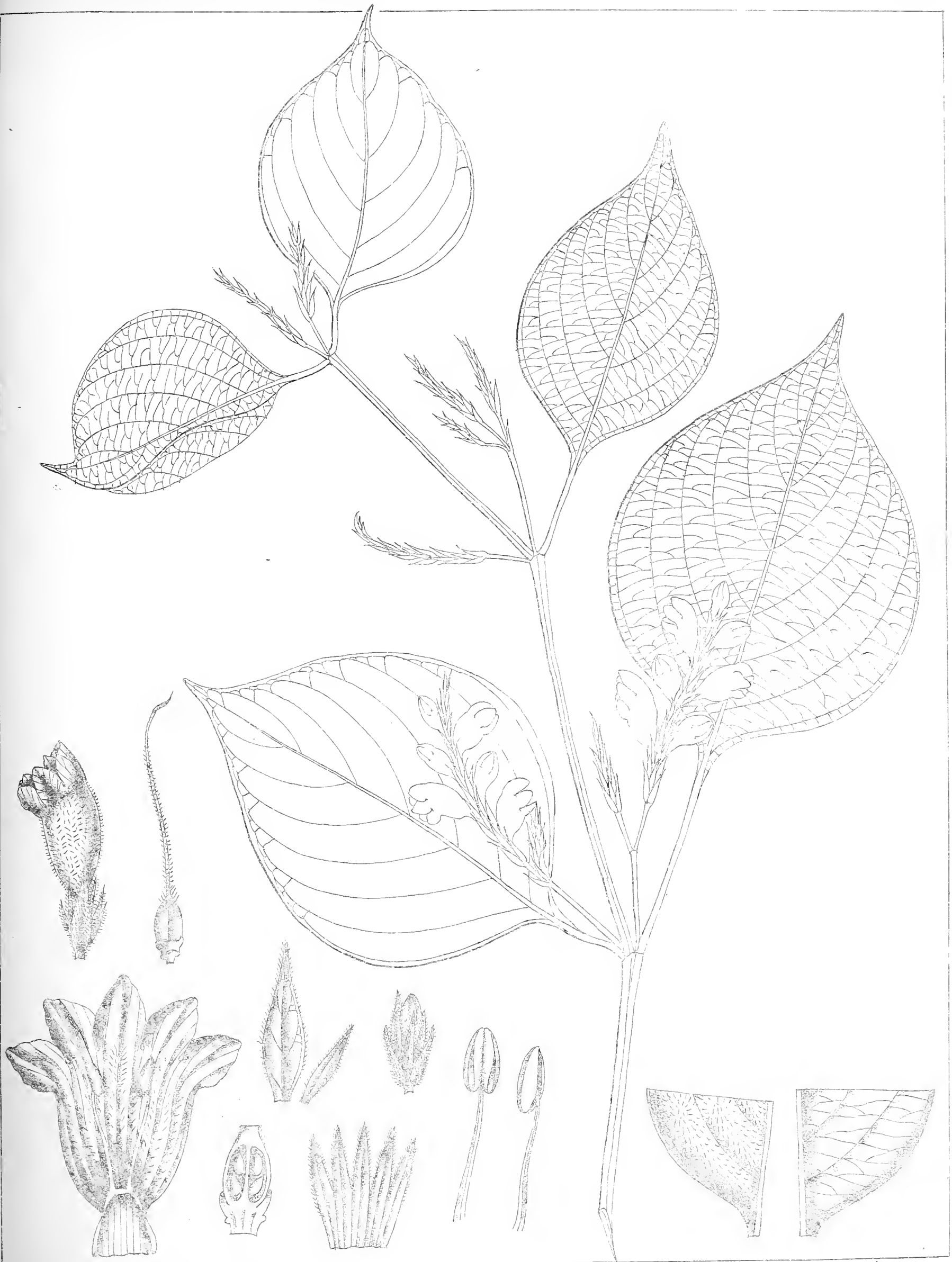




*Verbena canariensis* Bell.







Gouard del.

Dumortier sculp.

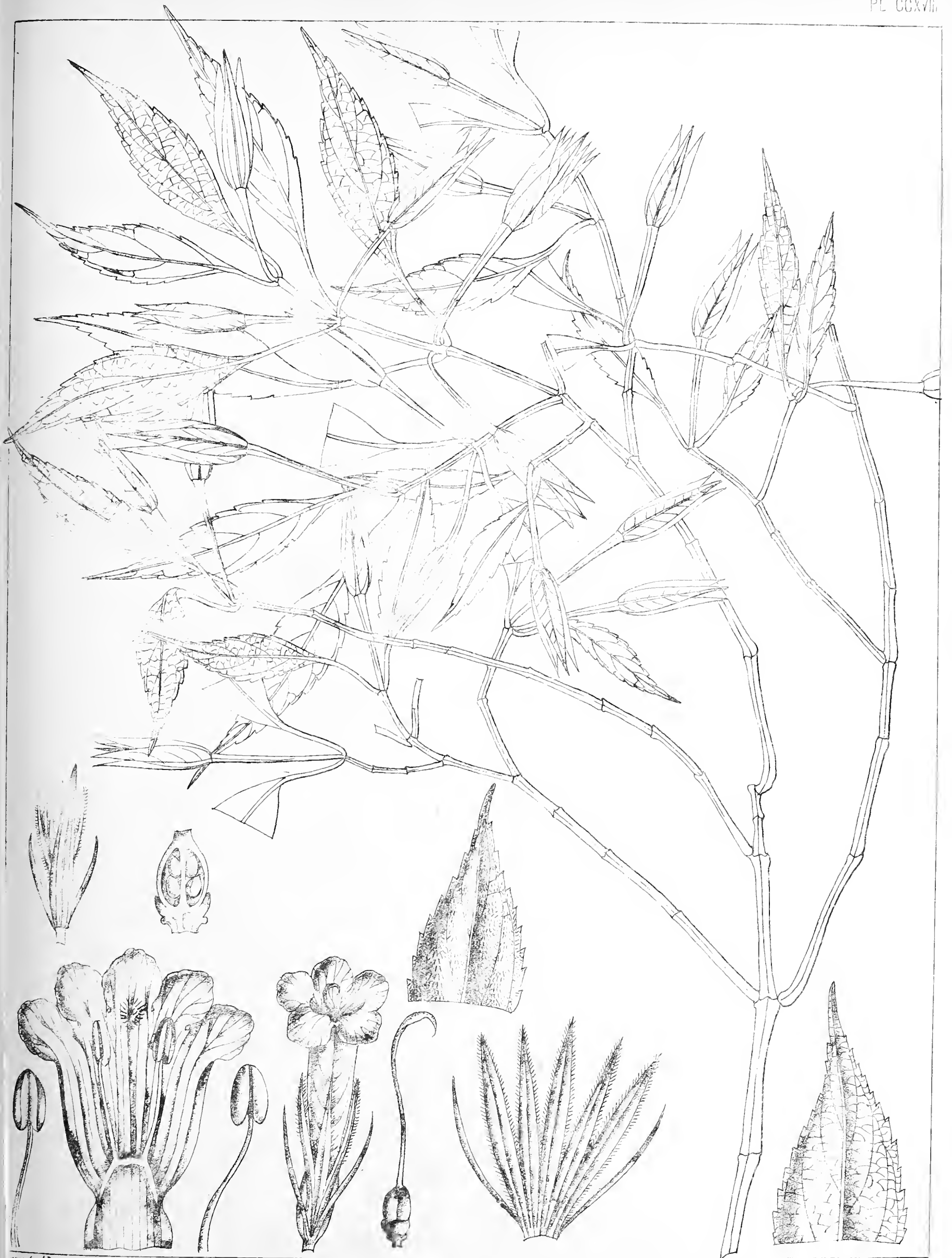
*Strobilanthes consanguineus*: Vies.





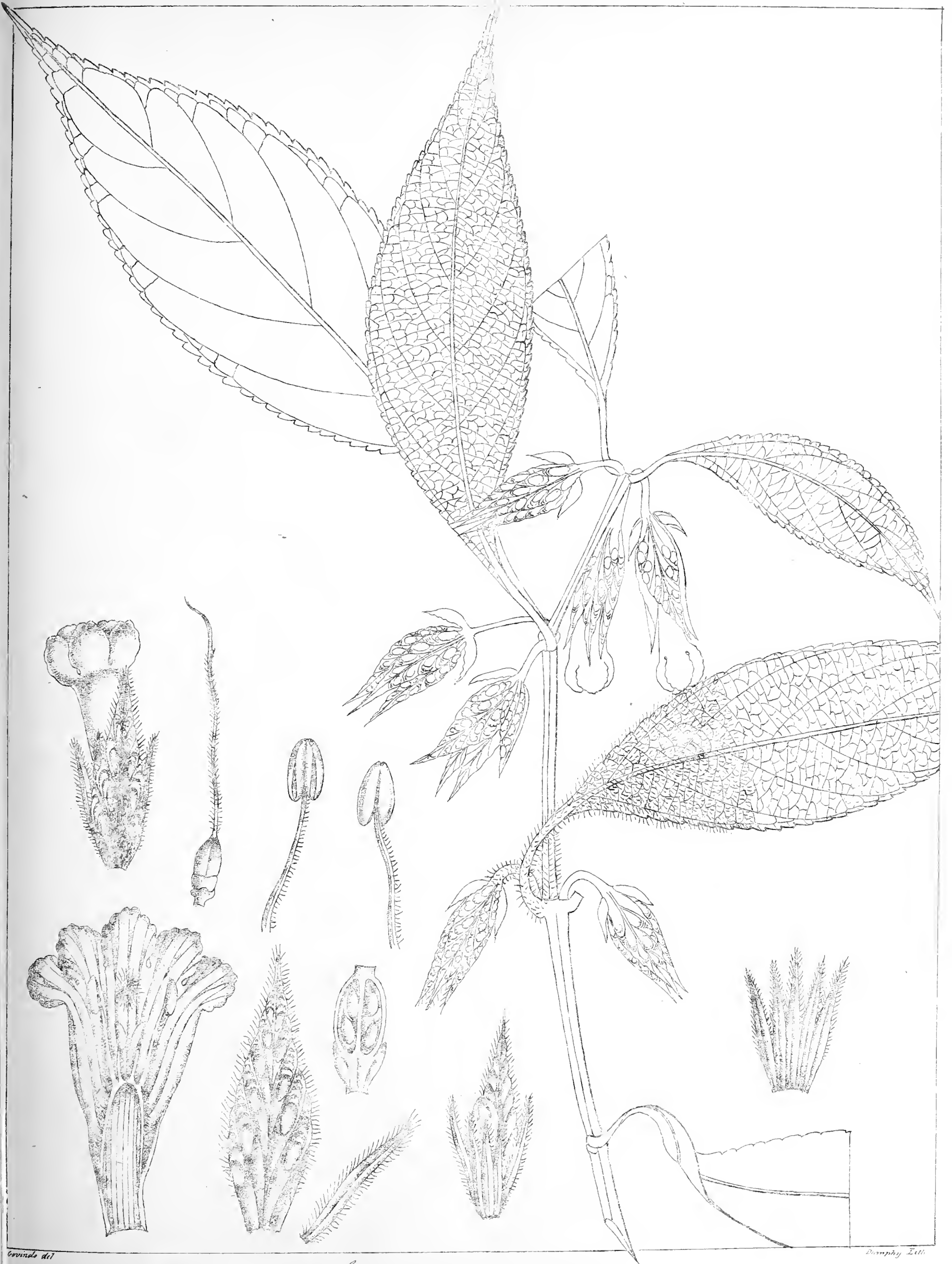
*Skrobilanthes negrascent, Anders*





*Strobilanthes deflexus. J. Anders.*

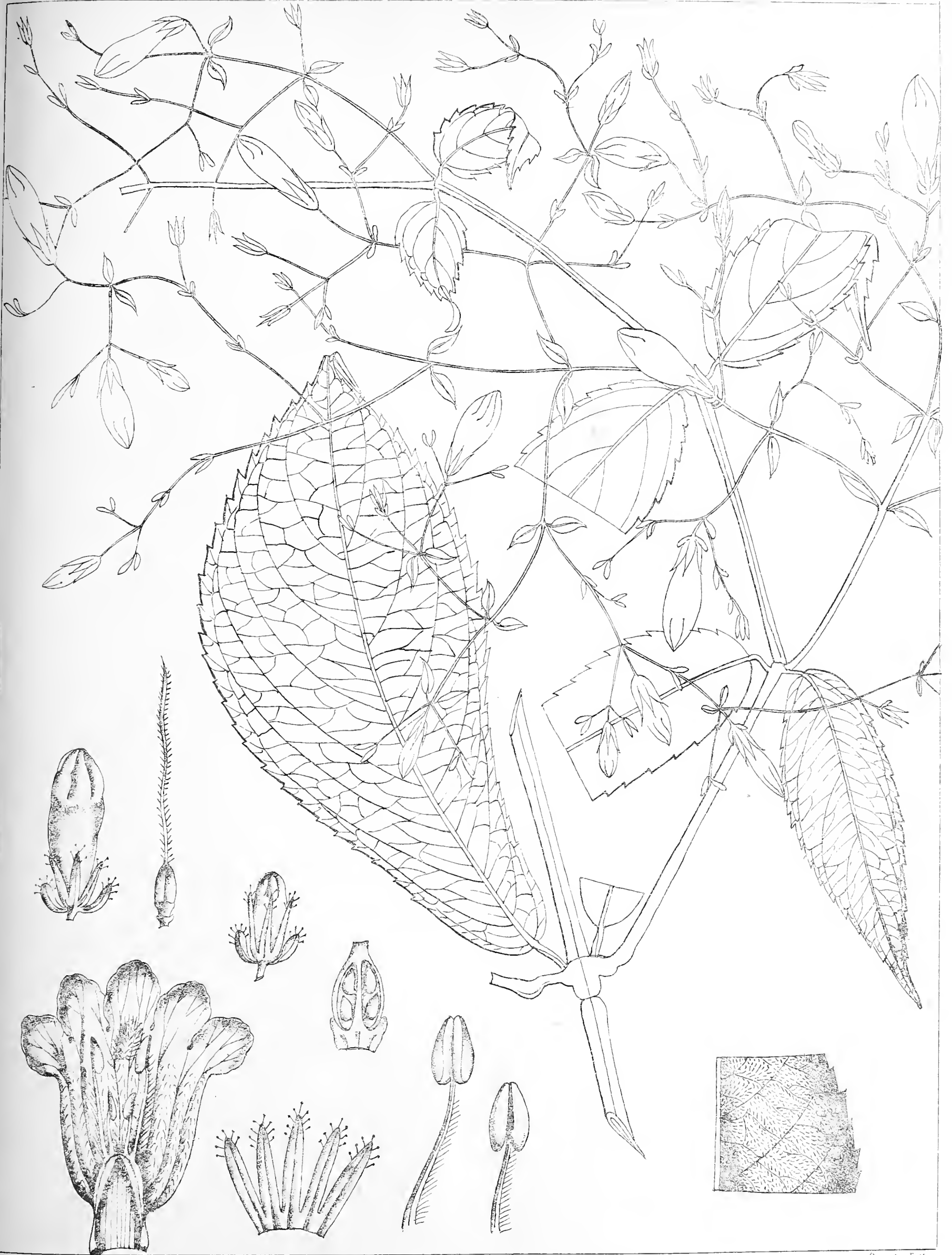




*Strobilanthes Thwaitesii*, Anders.







Gravando del

Dunlop & Lobb.

*Strobilanthes helicoides* (Nees)



## ACANTHACEÆ.

**STROBILANTHES CUSPIDATUS.** (Benth.) A large shrub, branches lanate when young glabrous in age, terete or obscurely 4-angled, leaves ovate acuminate a little attenuated at the base irregularly crenate, in age glabrous above or with a few hairs, (when young densely lanate) densely lanate beneath, without the petiole 3-4 inches long by  $1\frac{1}{2}$ -2 inches broad, prominently parallel-veined, petioles 1- $1\frac{3}{4}$  inches long. Spikes axillary often leafy glanduloso-hispid, bracts lanceolate acuminate or cuspidate, bracteoles linear lanceolate as long as the calyx, calyx cleft down half-way, segments acute and glanduloso-hirsute as are the bracts and bracteoles, corol about 1 inch long puberulous outside, tube very narrow at the base, stamens 2, filaments and style and apex of ovary hairy. *Benth. in Linn. xxiv. 646.*

Nilgiris, on the Seegoor ghat.

## PLATE CCXXI.

**STROBILANTHES WALKERI.** (Nees.) Shrubby 2-5 feet high, stems subglabrous tetragonal above, leaves elliptic to oval or suborbicular acuminate, acute at the base undulato-crenulate densely lineolate above and rather hairy and scabrous on both sides submembranaceous, without the petiole about 4 inches long by 2 broad, petioles often unequal up to  $1\frac{1}{2}$  or 2 inches long. Spikes axillary solitary or twin simple or trifid 1-2 inches long, the peduncle sulcato-striate bracteate and jointed, heads 1-3 flowered about  $\frac{1}{2}$  an inch long, bracts oval acute bullato-rugose slightly hairy and ciliate, bracteoles linear shorter than the calyx, calyx cleft to nearly the base, segments linear-lanceolate ciliate, corol about  $\frac{1}{2}$  inch long white or pale purple, tube scarcely contracted at the base, stamens 4 all equal exserted submonadelphous, filaments and style glabrous. *Nees. l. c. 181.*

Ceylon, central provinces, 4000-7000 feet.

## PLATE CCXXII.

**STROBILANTHES LAXUS.** (T. Anders.) Shrubby 4-6 feet, stems terete glabrous, leaves ovate acuminate cordate serrate subscabrous on both sides glandular beneath, without the petiole up to 6 inches long and  $2\frac{1}{2}$  broad, petioles up to  $2\frac{1}{2}$  inches long. Spikes solitary or twin strobiliform axillary many-flowered often branched rather lax, 1-5 inches long, bracts  $\frac{1}{2}$  inch long rotundato-ovate ciliate and furnished with waxy dots as are the bracteoles and calyx, bracteoles lanceolate, ciliate shorter than the calyx, calyx cleft to nearly the base, segments lanceolate acute equal or subequal ciliate broader than the bracteoles, corol  $\frac{3}{4}$  inch long yellowish red, purple at the base, stamens 4 monadelphous of equal length exserted, filaments and style glabrous. *Anders. in. Thw. l. c. p. 228.*

Ceylon, Hantani, 4000 feet elevation.

## PLATE CCXXIII.

**STROBILANTHES ZEYLANICUS.** (Anders.) Shrubby, 3-5 feet high, stems erect 4-angled sulcate subglabrous, leaves elliptic to oval or ovate acuminate scabroso-serrate coriaceous scabrous on both sides particularly on the prominent veins and densely lineolate above, 5-10 inches long by  $2\frac{1}{2}$ -4 broad, petioles 1- $1\frac{1}{2}$  inches long. Spikes strobiliform pedunculate axillary shorter than the leaves or elongated and leaf-bearing, bracts foliaceous large ovate with a long gradual acumination, lineolate, the margin scabrous, bracteoles lanceolate a little larger than the calycine lobes, calyx cleft  $\frac{1}{2}$  down, flowers  $1\frac{1}{2}$  inches long, hairy outside, tube contracted at the base, stamens 4 submonadelphous the two middle ones much shorter, filaments hairy, style and ovary glabrous. *Anders. l. c. 227.* *Strobilanthes callosus, Nees. partim.*

Ceylon, Ambagamwa district and Kokool corle, 2000 feet elevation.

## PLATE CCXXIV.

**STROBILANTHES ADENOPHORUS.** (Nees.) Shrubby 3-4 feet. Stems terete or slightly 4-sided lineolate, leaves narrow-lanceolate acuminate, much attenuated at the base and often decurrent on the petiole lineolate on both sides but otherwise glabrous, entire or slightly scollop-toothed, 4-5 inches long by 1 inch broad, submembranaceous paler beneath, primary veins distant about 4 on each side inconspicuous below, spikes axillary and terminal solitary, peduncles thickened towards the apex, 1- $1\frac{1}{2}$  inches long 1-2 jointed and with deciduous bracts at the joints, flower-heads oblong 1- $1\frac{1}{2}$  inches long, bracts, bracteoles and calyx lineolate but otherwise quite glabrous, bracts large obovate, bracteoles narrow-ligulate much shorter than the calyx, calyx cleft to nearly the middle, segments acute 2 of them often more or less united, corol 1 inch long the tube funnel-shaped contracted only at its base glabrous out-

side a little hairy within. Stamens 4 monadelphous the 2 middle ones shorter and a fifth fertile one sometimes present, filaments hairy, apex of ovary and style hairy. *Nees. in DC. l. c. p. 182.* *Strobilanthes lanceolatus*, *Nees. l. c. 181.* *Goldfussia myrtinia*, *Nees. l. c. 174.*

Anamallay mountains 4-5000 feet, and also in Ceylon. The plant figured is from the former locality and I have no Ceylon specimens for comparison, but Dr. Anderson refers my specimens to this species.

#### PLATE CCXXV.

The following South-Indian species are figured by Dr. Wight in his *Icones*.

*Strobilanthes viscosus*, *Arn.* (*Endopogon*, *versicolor* and *viscosus*). Anamallays and Nilgiris.

- |   |  |           |        |                         |         |
|---|--|-----------|--------|-------------------------|---------|
| „ | <i>Kunthianus</i> , <i>Wall.</i> ( <i>Phlebophyllum</i> ).                                 | Nilgiris  | higher | ranges.                 |         |
| „ | <i>Wightianus</i> , <i>Nees.</i>   | Nilgiris  | and    | Pulneys, higher ranges. |         |
| „ | <i>punctatus</i> , <i>Nees.</i> ( <i>Ruellia?</i> <i>punctata</i> ).                       | Pulneys   | higher | ranges.                 |         |
| „ | <i>asper</i> , <i>Wight.</i>   | Nilgiris  | do     | do                      |         |
| „ | <i>sessiloides</i> , <i>Wight.</i>   | „         | do     | do                      |         |
| „ | <i>sessilis</i> , <i>Nees.</i>   | „         | do     | do                      |         |
| „ | <i>Perottetianus</i> , <i>Nees.</i>  | „         | do     | do                      |         |
| „ | <i>Zenkerianus</i> , <i>Nees.</i> ( <i>Endopogon</i> <i>Strobilanthes</i> ).               | Western   | ghats  | generally.              |         |
| „ | <i>foliosus</i> , <i>Wight.</i> ( <i>Endopogon</i> <i>foliosus</i> and <i>capitatus</i> ). | Western   | ghats  | generally.              |         |
| „ | <i>Strobilanthes micranthus</i> , <i>Wight.</i>  | Western   | ghats  | generally.              |         |
| „ | <i>luridus</i> , <i>Wight.</i>   | Western   | ghats  | generally.              |         |
| „ | <i>lupulinus</i> , <i>Nees.</i> ( <i>Strob.</i> <i>rugosus</i> , <i>campanulatus</i> ).    | Western   | ghats  | generally.              |         |
| „ | <i>Grahamianus</i> , <i>Wight.</i>   | Bombay    | ghats. |                         |         |
| „ | <i>tristis</i> , <i>Wight.</i> ( <i>Goldfussia</i> <i>tristis</i> ).                       | Western   | ghats  | generally.              |         |
| „ | <i>pallidus</i> , <i>Anders.</i> ( <i>Goldfussia</i> <i>decurrens</i> ).                   | Coorg     | and    | Canara.                 |         |
| „ | <i>perfoliatus</i> , <i>Anders.</i> ( <i>Leptacanthus</i> <i>alatus</i> ).                 | Coorg     | Canara | and                     | Concar. |
| „ | <i>pulcherrimus</i> , <i>Anders.</i> ( <i>Leptacanthus</i> <i>Walkerii</i> ).              | Nilgiris. |        |                         |         |
| „ | <i>Neesianus</i> , <i>Wight.</i> (unknown to me).  | Nilgiris. |        |                         |         |
| „ | <i>rhamnifolius</i> , <i>Nees.</i> ( <i>Endopogon</i> <i>rhamnifolius</i> ).               | Ceylon.   |        |                         |         |

Of the following 5 Ceylon species I have no specimens.

*S. Gardnerianus*, *Nees.*; *S. scaber*, *Wall.*; *S. Hookeri*, *Nees.*; *S. vestitus*, *Nees.*; *S. Arnottianus*, *Nees.*; nor have I specimens of *S. callosus*, *Nees.*, which occurs on the Concan ghats and in the Nagpore country.

Besides these Bentham describes (*Walps. Ann. III*, 218) a South Canara species under the name of *S. microstachys*, which is unknown to me; and I do not know *S. rubicundus* (*Leptacanthus*, *Nees.*) a South Indian plant, and I have a new species only in leaf (somewhat allied to *S. perfoliatus*) from the higher ranges of the Anamallays; this gives a total of 59 species for Southern India and Ceylon.

**LEPIDAGATHIS GRANDIFLORA.** (*Dalz.*) Shrubby, branches 4-angled glabrous except a few hairs at the joints, leaves elliptic acute or acuminate, the upper ones sessile or subsessile, the lower petioled, in age sub-glabrous on both sides or with a few scattered hairs, margins entire scabrous and ciliate, 5-8 inches and more long by  $1\frac{1}{2}$ - $2\frac{1}{2}$  or more broad, petioles up to 2 inches. Spikes terminal and from the upper axils generally simple, bracts large oval penninerved, hirsute and long ciliate as are the bracteoles and calyx, bracteoles narrow lanceolate, calyx 5-cleft to nearly the base the upper segment broad lanceolate 5-nerved, the 2 lower narrow lanceolate 3-nerved, the lateral ones subulate; corol  $1\frac{1}{2}$  or nearly 2 inches long pale blue deeply bilabiate, the upper lip bifid the 2 lobes emarginate, the lower lip 3-lobed, the convex palate furnished with long yellow hairs, anthers ciliate subsaggitate at the base, ovary and style hairy. *Dalz. in Hook. Journ. of Bot. ii. 138.*

South Canara, common at Bellatangady and elsewhere near the foot of the ghats; flowers in November and December. Also on the Syhadree mountains, Bombay: the whole plant turns black in drying.

#### PLATE CCXXVI.

**LEPIDAGATHIS CUSPIDATA.** (*Nees.*) Shrubby, stems pubescent at least towards the apex, leaves elliptic acuminate entire or somewhat repand glanduloso-pubescent when young, in age glabrous or with a few hairs, often decurrent on the petiole, up to 8 inches long by  $2\frac{1}{4}$  broad, petioles up to 3 inches long, spikes axillary 3-4 inches long, or elongated and leafy below, the leaves small

not exceeding 1 inch in length, bracts oval 3-nerved about  $\frac{1}{2}$  inch long by 3-4 lines broad glanduloso-pubescent and spinoso-mucronate as are the bracteoles and calyx, bracteoles lanceolate much smaller than the calyx, calyx 5-cleft to nearly the base, the upper segment broad lanceolate 3-nerved or sub 5-nerved, the 2 lower lanceolate 3-nerved the 2 lateral ones linear lanceolate all equal or subequal in length or sometimes the upper one double as long as the others, corol shortly tubular a little hairy outside, limb bilabiate the lower lip larger a little hairy inside below the anthers, 3-partite, the lobes rounded equal, the upper lip rounded emarginate, the 2 inner stamens a little longer than the other 2, anthers ciliate, one of the cells much below the other and divergent, style hairy. *Nees. DC. l. c. 258.*

South Canara on laterite rocks about Sooleay, quite in the plains; also on the Bombay ghats. Dr. Wight's *L. longifolia* from Malacca (*Icones tab. 1564*) is closely allied but has the anthers spurred.

#### PLATE CCXXVII.

**LEPIDAGATHIS FASCICULATA.** (Nees.) Stems herbaceous somewhat procumbent villous, leaves membranaceous ovate to elliptic acute or acuminate softly villous or hirsute, 1-2 inches long by  $\frac{1}{2}$ -1 inch broad, sinuately dentate, petioles 2-4 lines long, spikes axillary and terminal simple or branched generally lower than the leaves and often leafy, bracts oval or elliptic 3-nerved glanduloso-pubescent as are the bracteoles and calyx, bracteoles linear lanceolate shorter than or as long as the calyx equal or unequal, calyx 5 cleft to nearly the base, segments equal in length the upper one lanceolate 3-nerved the 2 lower linear-lanceolate, the 2 lateral subetaceous, corol 2-3 lines long white with purple mottlings, the upper lip emarginate the lower 3-lobed, filaments glabrous, anther-cells ciliate one rather above the other, style and apex of ovary hairy. *Nees, in DC. l. c. 260. Lep. Goensis, Dalz. l. c. 340.*

Malabar, Canara, &c., also in Behar, Ceylon and Birmah.

#### PLATE CCXXVIII.

**LEPIDAGATHIS RUPESTRIS.** (Nees.) A low plant spreading close to the ground, stems suffruticose acutely 4-angled or almost winged, the angles scabrous with thick hairs, leaves oblong sessile rough above with a transverse lineolation, scabrous on the nerves beneath with coarse hairs  $\frac{3}{4}$ -1 $\frac{1}{4}$  inch long by 4-6 lines broad, flowers congested in a large woolly ball at the apex of the root, bracts and bracteoles similar ovate or oval cuspidato-mucronate, calyx 4-partite the upper segment ovate 5-nerved the lower deeply bifid, the 2 lateral ones lanceolate, all scariose and mucronate and densely hairy and ciliate chiefly at the apex with long woolly hair, corol bilabiate very hairy, upper lip emarginate, lower 3-lobed, stamens subequal, filaments glabrous, anther-cells ciliate one above the other. *Nees. DC. l. c. p. 256.*

Kurnool and Cuddapah plains, in black cotton-soil.

#### PLATE CCXXIX.

### VIOLACEÆ.

**IONIDIUM TRAVANCORICUM.** (Bedd.) A perennial shrub 5 feet high, branches erect woody glabrous terete below, angled towards the apex; stipules subulate glanduloso-puberulous, leaves linear lanceolate subsessile, distantly serrated glabrous 2 $\frac{1}{2}$ -3 $\frac{1}{2}$  inches long by 6-10 lines broad, flowers pink, peduncles 6-8 lines long furnished with 2 puberulous bracteoles towards the apex a little below the flower and there jointed, sepals long subulate not keeled equal recurved, the lower petal with the long claw saccate and furnished with 2 spurs, the others falcate, the upper 2 only ciliate, the 2 anthers nearest the large petal furnished with a round gibbous spur at the base, seeds white 6-9.

Travancore and Tinnevely hills 2-3000 feet elevation, very like the common *I. suffruticosum*, but a tall shrub.

#### PLATE CCXXX.

### EUPHORBIACEÆ.

**CLAOXYLON INDICUM.** (Mull.) An undershrub, diæcious, young parts strigose or nearly glabrous, leaves membranaceous elliptic more or less acuminate serrate the serratures often ending in a bristle, rather scabrous with rough dots but in age generally without hairs except on the costa, 3-8 inches long by  $\frac{3}{4}$ -2 inches broad, petioles  $\frac{1}{2}$ -2 inches long with often 2 small glands at the conjunction with the leaf, racemes axillary shorter than or nearly (particularly in the male) equalling the leaves, the rachis glabrous or

subglabrous, the bracts and flowers more or less hairy, flowers in interrupted tufts along the racemes, the female with few bracts and 1-flowered, the male with numerous bracts and several flowers, perianth or calyx 3-4 parted, the *female* with 3-4 narrow spatulate slightly hairy glands (or petals?) shorter than the sepals, ovary hairy 2-3 cells, styles 2-3 much lacerate, the *male* with about 30-32 stamens mixed with clavate very small glands the apices of which are furnished with 2-3 long bristles, capsule about 3 lines diameter, the 3 rounded cocci strigose, a central column present in the middle. *Mull. DC. xv. 782.*

Anamallays and Tinnevely hills up to 3000 feet. My specimens of the Ceylon plant, named *C. longifolium* by Thwaites and *C. oligandrum* by Muller, appear to be quite the same; they are however in very young bud as far as the male goes, and it is described by Muller as having fewer stamens. The drawing represents a female plant:—1, is a tuft from the male raceme; 2, a male bract; 3-4, male flowers showing 30 stamens and 3 or 4 sepals; 5, anthers; 6, one of the glands mixed with the anthers; 7, female flowers 2 3 styles; 8, the gland or petal removed from the same; 9, vertical section of the ovary; 10, transverse section; 11, fruit; 12, fruit, the cocci fallen off, showing the central column.

#### PLATE CCXXXI.

**MALLOTUS DISTANS.** (Wall.) A shrub often straggling but sometimes a small tree, young branches petioles and inflorescence densely clothed with short soft greenish stellate tomentum, petioles opposite very unequal  $\frac{3}{4}$ -2 $\frac{1}{2}$  inches long, leaves membranaceous 3-nerved up to rather more than a foot long by 7 inches broad but generally smaller, broad ovate or rhomboido-ovate entire or obscurely toothed acute or acuminate, not peltate or very slightly so and furnished at the base on the upper side with 2-6 large black glands, in age glabrous above, beneath softly and densely stellato-pubescent and often minutely and inconspicuously aureo-punctulate, bracts linear, *female* racemes from shorter to as long or longer than the leaves slender drooping 3-12 flowered, flowers distant solitary on pedicels about 3 lines long, elongating in fruit to 6-9 lines, calyx 3-5-parted, no disk, ovary densely and softly stellato-tomentose, capsule unarmed 3-lobed 4-6 lines in diameter stellately-fulvous. *Male* spikes more or less elongate, the flowers in interrupted distant sessile heads along the rachis, the heads each bearing 4-10 flowers and subtended by a single bract, calyx as in the female, no disk. Stamens about 45. *DC. Prod. xv. 976. Croton distans, Wall. 7772-A.*

Tinnevely near Courtallum, very abundant on the Singamputti hills, south of Courtallum, 1000-2000 feet.

#### PLATE CCXXXII.

**CROTON RETICULATUM.** (Wall.) A shrub 3-5 feet, monœcious, young branches and young parts densely ferruginous with brown stellate scales, leaves submembranaceous ovato to-oblongo-lanceolate acuminate quite entire or nearly so at margins, in age glabrous above, silvery-white beneath with scales, up to 8 inches long by 2 $\frac{1}{2}$  broad, but usually smaller, petioles up to 1 inch furnished at their very apex with 2 (rarely 4) pedicelled clavate glands. Stipules small subulate deciduous, racemes terminal or from the upper axils up to 3-4 inches long many flowered, a few of the lower flowers female the others all male, all silvery-white, bracts inconspicuous, male flowers clustered about 1 line in diameter on short pedicels, the petals oblong ciliate and often lanate much larger than the calycine segments, stamens 15-20, filaments glabrous, receptacle villous, the female flowers 2-3 times larger than the male, the hypogynous disk glabrous repando-crenate or sub 5-lobed, styles 3, each 2-cleft with the divisions again bifid, the stigmas or arms truncate rigid glabrous subinvolute-incurved, calyx increasing when in fruit, the capsule ferruginous with scales subglobose 6 lines long by about the same breadth. Seed brown mottled. *Wall. cat. 7724-B. ;—DC. Prod. xv. 580. Croton hypoleucos Dalz. in Hook. Journ. of Bot. 1853 Vol. III. p. 123.*

Common in all our western moist forests up to 3-4000 feet elevation. In the analysis, fig. 1 is a fruit life size; 2, one of the cocci inner face, just burst and shewing the seed; 3, the seed; 4 shows the central column from round which the 3 cocci have fallen off.

#### PLATE CCXXXIII.

#### GRAMINEÆ.

**OXYTENANTHERA MONOSTIGMA.** (Bedd.) A large unarmed reed, culms—? leaves 8-10 inches long by 1-1 $\frac{1}{2}$  broad lanceolate rounded or somewhat attenuated at the base, setaceo-acuminate at the apex, glabrous except minute asperous recurved points at or near the margin (sensible to the touch but not visible without the lens), primary veins 6-8 on each side. Sheaths striated glabrous, inflorescence terminal in very closely approximated dense globular heads about 2 inches in diameter, spikelets very numerous perfectly glabrous about 1 inch long and very narrow, 2-flowered, viz, one empty palea above the 2 unequal glumes and 1 terminal bipaleaceous floret, lower palea very glabrous and shining with glabrous margins, apex much hardened and terminating in a long



articulated spiny point which is deciduous in age, upper palea convex and perfectly glabrous shorter than the lower, stamens 6 monadelphous in a long tube, anthers with a prominent bristle hairy at its apex, squamulae none, style and ovary perfectly glabrous, stigma entire terminating in a minute thickened point at its very apex, caryopsis narrow linear oblong, when ripe half as long as the upper palea in which it is closely folded.

**Anamallays.** It is at once distinguished from all the rest of the genus by the articulated very long spiny point to the lower palea of the terminal or fertile floret, the palea and glumes are perfectly glabrous even at their margins, and the style is glabrous with a simple stigma. *Bedd. Fl. Syl. p. 233.*

#### PLATE CCXXXIV.

#### RUBIACEÆ.

**NAUCLEA PEDUNCULARIS.** (Wall.) A middling sized tree, glabrous, the branches a little compressed, leaves ovato-elliptic coriaceous acuminate glabrous about 6 inches long by 2 broad, petioles 3-4 lines long, peduncles terminal stout, pedicels 3 slender 15-18 lines long bracteate at the base, flower heads 8-9 lines in diameter, no bracteoles between the flowers, calyx-segments linear-spathulate rounded at the apex a little hairy, corol yellow turning to purple, tube a little hairy towards the apex outside and hairy within, lobes oblong hairy outside and there furnished with a short horn below the apex, filaments about as long as the anthers, anthers slightly apiculate, stigma globose sulcate, ovules about 7 in each cell, the placentas pendulous from nearly the apex of the partition. *Wall. cat. 6091;--Walps. Rep. ii. 512.*

Ceylon, Saffragram and contiguous districts, up to 1000 feet, not uncommon.

#### PLATE CCXXXV.

**PSYCHOTRIA ANAMALLAYANA.** (Bedd.) A large shrub or small tree, glabrous, stipules broad-lanceolate with a long acumination much sheathing, 1-2 inches long deciduous, leaves euneato-obovate shortly and abruptly acuminate, 8-12 inches long 2-2½ inches broad towards the apex, much attenuated towards the base, petiole 1-2 inches long, cymes terminal shortly pedunculate many flowered, flowers greenish large, bracts minute acute deciduous, calyx cup-shaped shortly but sharply 5-toothed, corol-tube very short villous in the jaws at the insertion of the anthers, lobes thick rather longer than the tube, filaments glabrous as long as the anthers. Style glabrous, stigma of 2 clavate lobes, berry oblong about 9 lines long by 4 broad, crowned with the remains of the calyx. *Grumilea longifolia, Bedd. in. Linn. Trans. Vol. XXV. p. 218 (not Psychotria longifolia, Dalz.)*

Anamallay forests, generally on banks of rivers at 3000-4500 feet elevation.

#### PLATE CCXXXVI.

**RANDIA DECCANENSIS.** (Bedd.) An unarmed tree 30 feet, young shoots tomentose, leaves broadly-ovate rhomboid-ovate or almost orbicular obtuse or emarginate scarcely coriaceous, above glabrous or subglabrous in age, beneath densely velvety, 3-4 inches long by 2-4 broad, petioles ½-1 inch long, cymes axillary or from the old axils a little shorter than the leaves subglabrous, rather loose, the branchlets 3-flowered, flowers 5-merous white 6 lines in expansion, calyx cup-shaped, the teeth small acute, corol hairy outside the tube scarcely as long as the lobes hairy in the jaws, lobes rounded. Stamens exserted quite sessile, style linear, stigma scarcely exserted globular entire, ovary cells 5 ovuled, fruit not seen. *Bedd. Fl. Syl. under Rubiaceæ.*

Nallaymallay mountains, Kurnool.

#### PLATE CCXXXVII.

**PLECTRONIA MACROCARPA.** (Thw.) Shrubby subscandent, thorns axillary very stout recurved, branches terete rufo-pilose when young glabrous in age, leaves ovate acuminate 1½-3 inches long by ¾-1½ broad densely rufo-pilose beneath particularly on the prominent veins, sparingly pilose above, petioles 2-3 lines long pilose, cymes pilose solitary in the axils the peduncles 6-8 lines long, flowers numerous on the dichotomous branchlets with a single one in the fork, brownish white rounded at the apex in the bud, 5-merous, calyx minutely toothed, corol about 3 lines long contracted above the tube when in bud, the lobes lanceolate a little hairy on the outside at length reflexed and a little longer than the tube, tube pilose within. Stamens exserted, style hairy much exserted, stigma thick



ovoid entire sulcated, drupe roundish rather compressed emarginate 1 inch long. Seeds tuberculate. *Canthium macrocarpum*, *Thw. En. Pl. Zey. p. 152.*

Ceylon, Hantani, at 3000 feet elevation.

PLATE CCXXXVIII.

**PLECTRONIA TRAVANCORICA.** (Bedd.) A middling sized tree unarmed, branches terete glabrous. Stipules with a long filiform subulate point (5 lines long) from a broad base; leaves ovate with a bluntish acumination glabrous membranaceous, about 2 inches long by 1 inch broad, much paler beneath, petioles 6-8 lines long, cymes glabrous slender many-flowered axillary or from tubercles at the axils solitary or several together shorter than the leaves, pedicels elongate and slender, flowers 4-merous very small rounded in the bud campanulate, calycine teeth subulate persistent, the tube and lobes of the corol each 1-1½ lines long, tube with a ring of hairs in its jaws, lobes ovate scarcely acute, stamens exserted, style much exserted glabrous, stigma globose sulcate, fruit not seen.

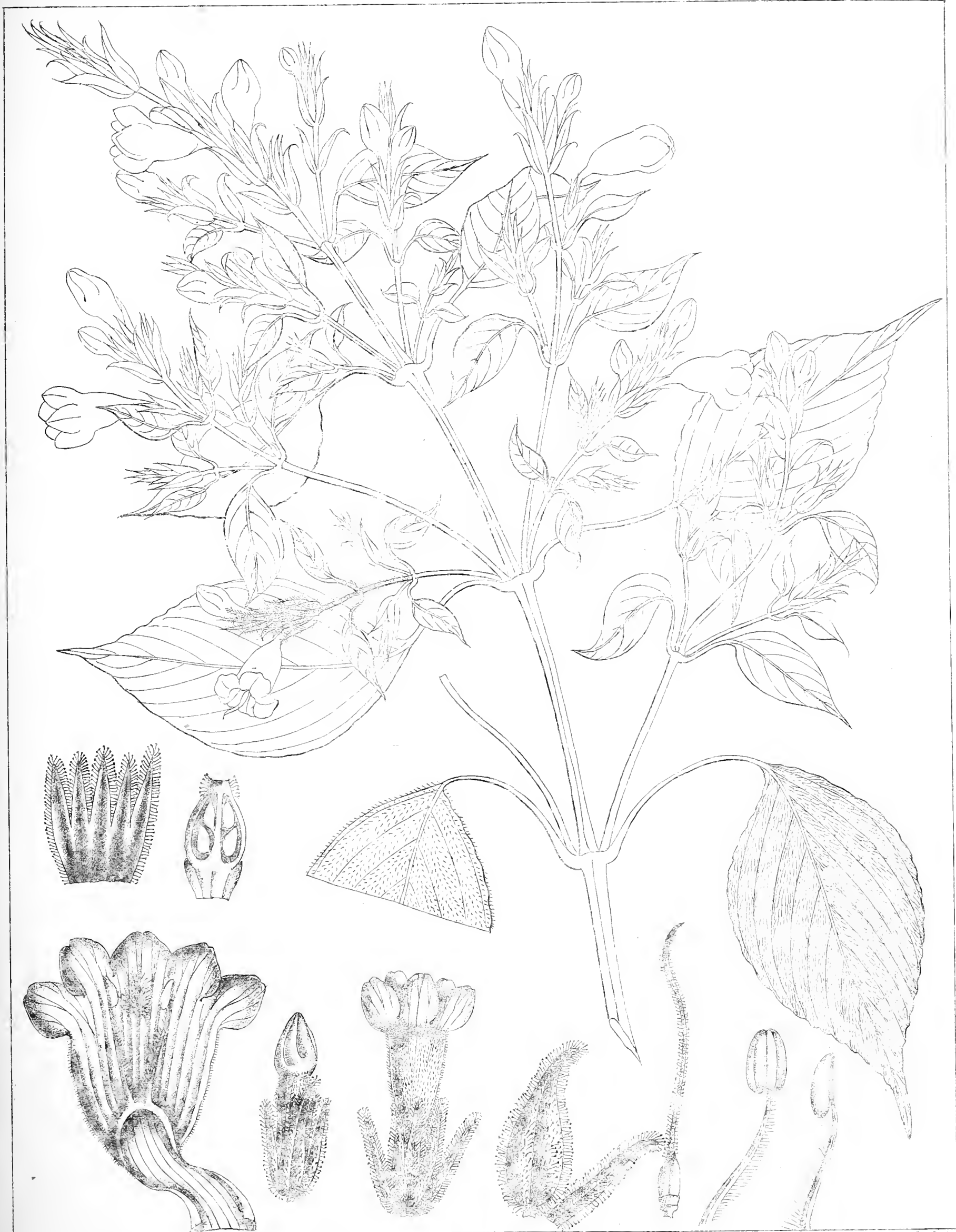
I have only met with this tree on the Travancore and Tinnevely ghats.

PLATE CCXXXIX.

**SCYPHOSTACHYS COFFEOIDES.** (Thw.) A shrub, leaves lanceolate much attenuated at both ends acuminate at the apex glabrous subcoriaceous, 2½-5 inches long by ¾-1¾ inch broad, petioles 1-2 lines long, stipules entire at the margins glabrous inside subscariose, peduncle very short or wanting, flowers solitary at first almost quite enclosed in the large sheathing subscariose bracteole, fruit a red berry. Seed oblong striated about 2 lines long. *Thw. En. Pl. Zey. p. 157.*

Ceylon, Ratnapoora district, abundant up to no great elevation, called Wal copee.

PLATE CCXL.



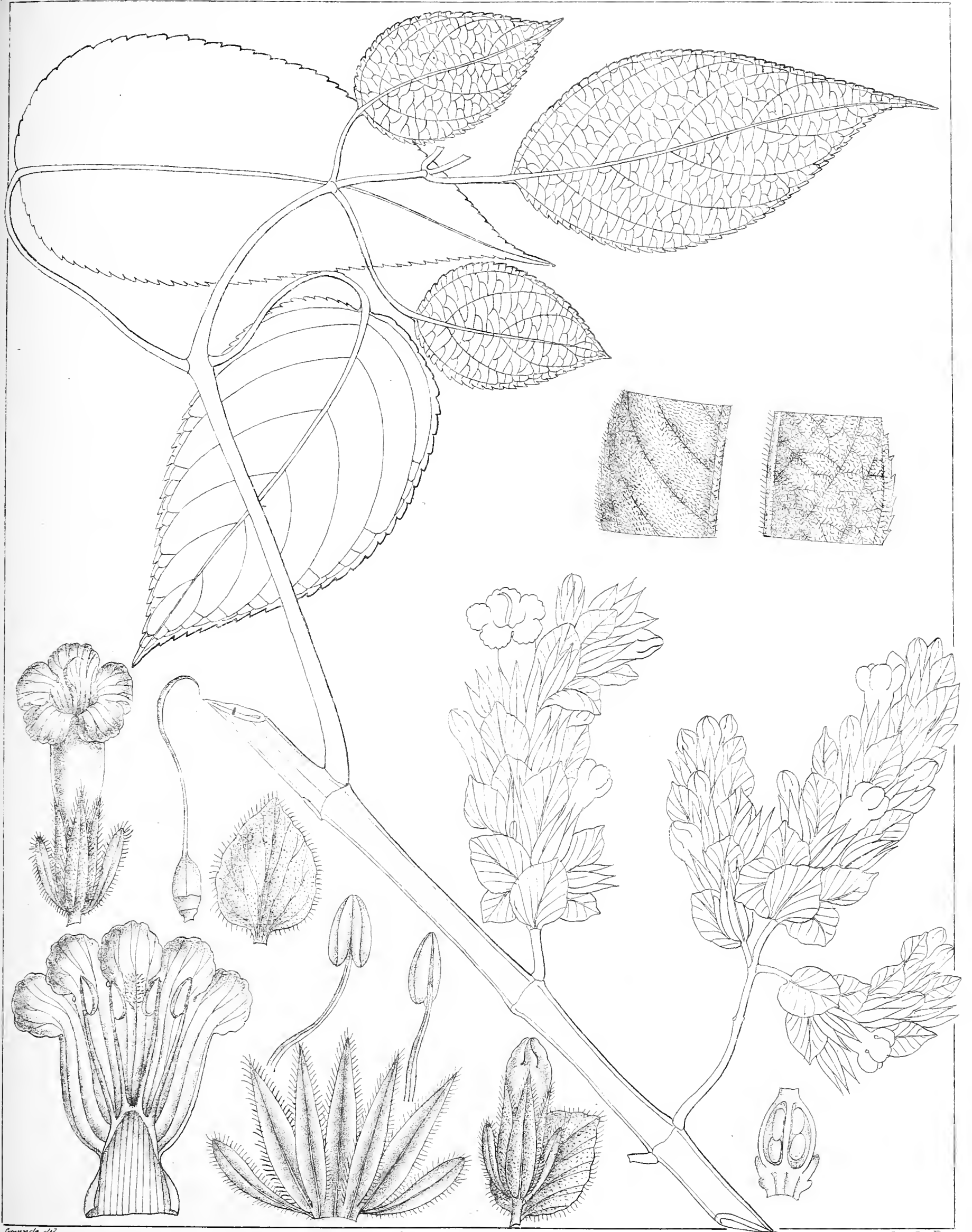
*Strobilanthes cuspidatus* Benth.





*Strobilanthes Walkeri* / New.





*Strobilanthes laxus* (Anders.)







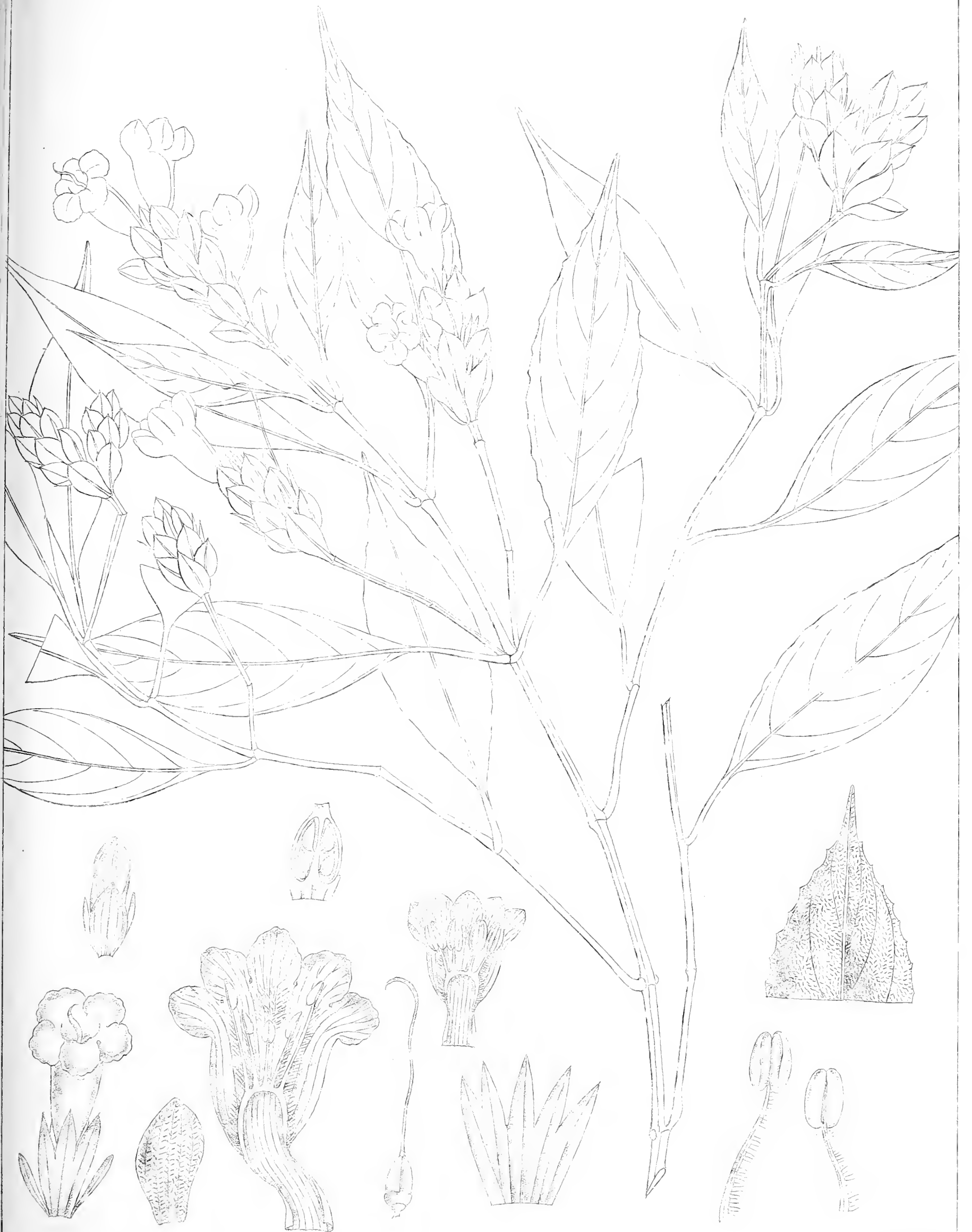
Gravido del

Thurberghy. 1811

*Strobilanthes Heylenicus*, Anders.





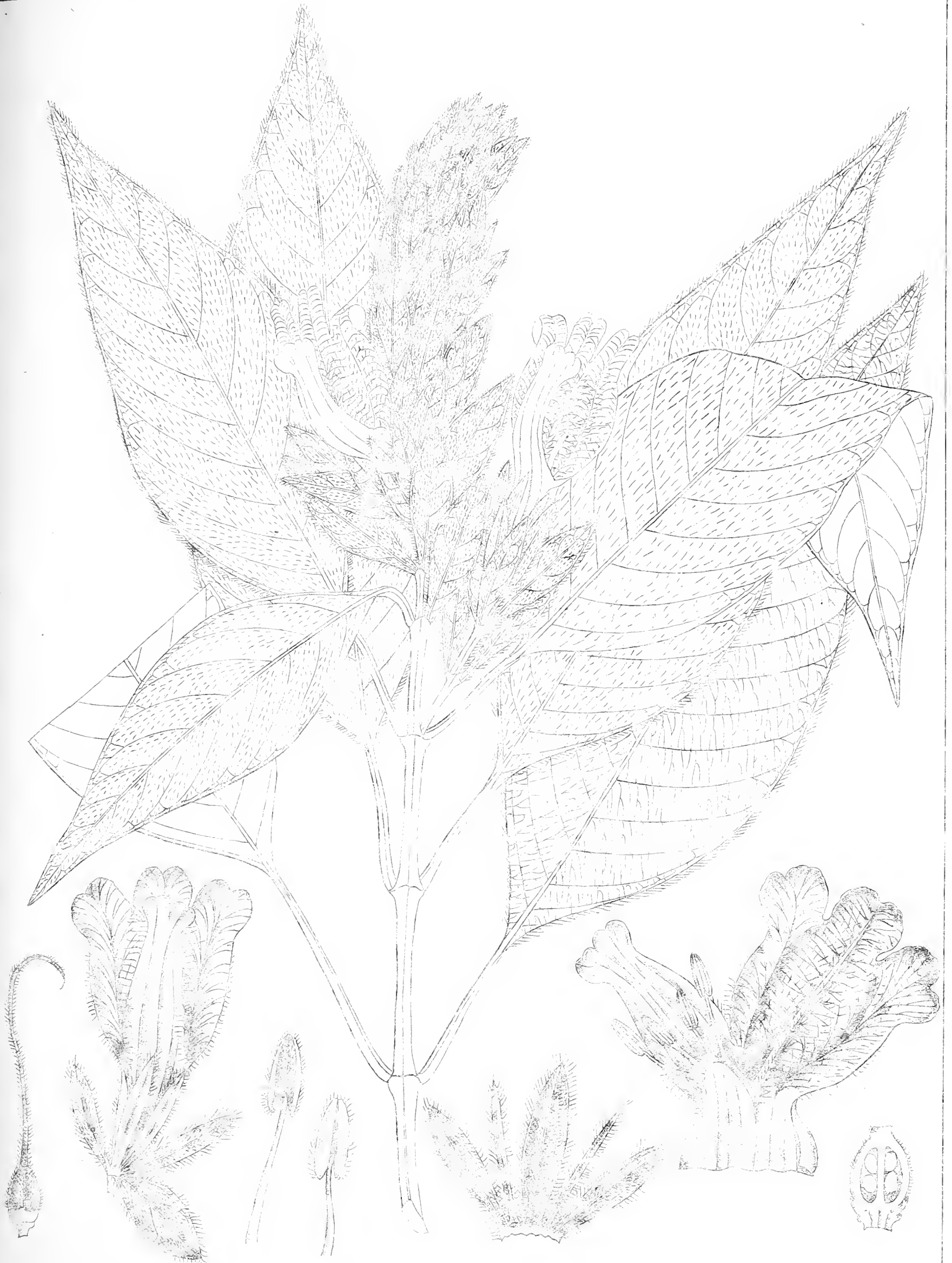


Gouardo del

Dr. J. J. Smith

*Strobilanthes adenophorus* (Nees)





*Lepidagathis grandiflora* Aubl.





*Lepidagathis cuspidata* Vries



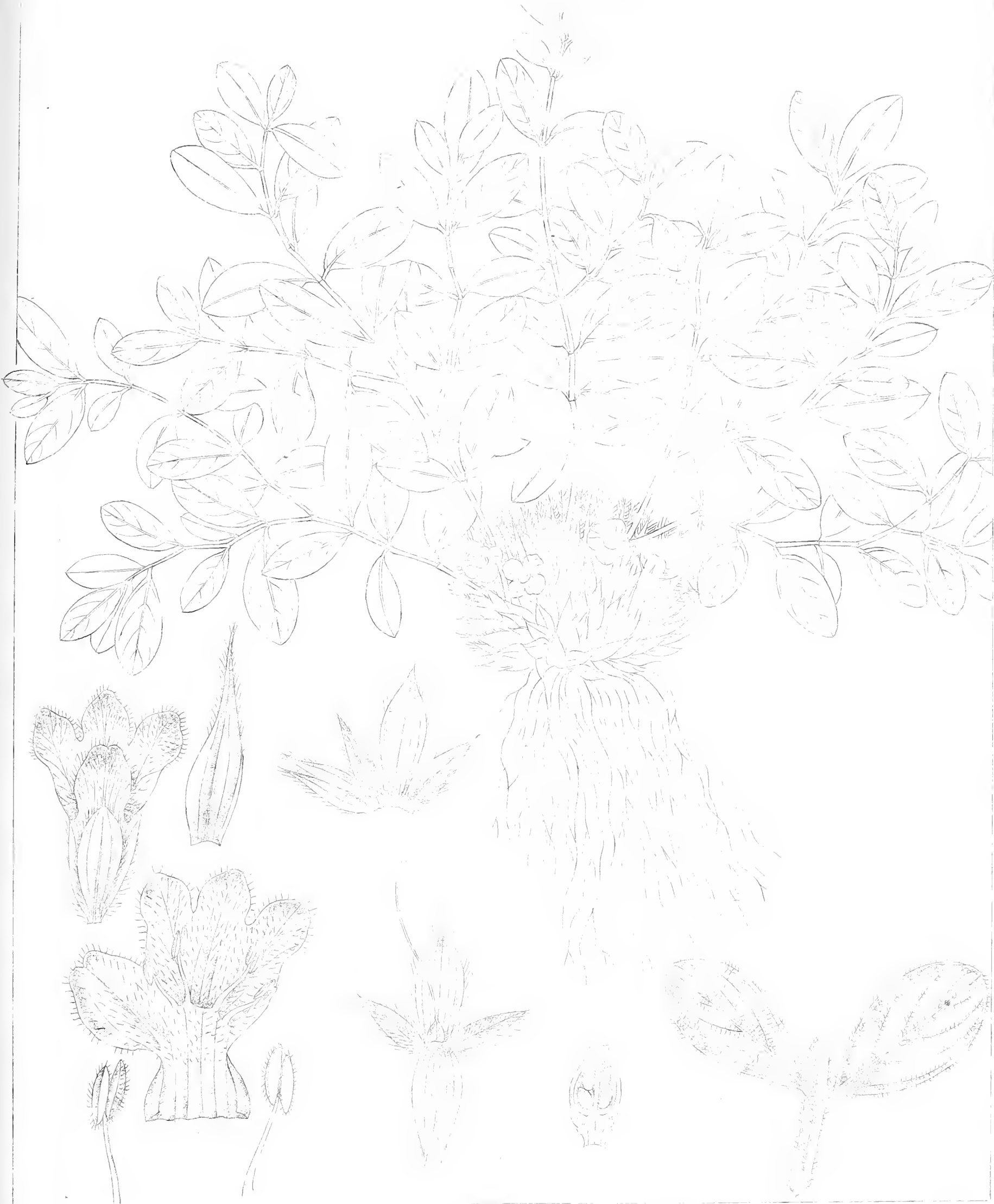


var. ... del

*Lythrum hyssopifolium* L.







*Lepidagium rupestre* Nees

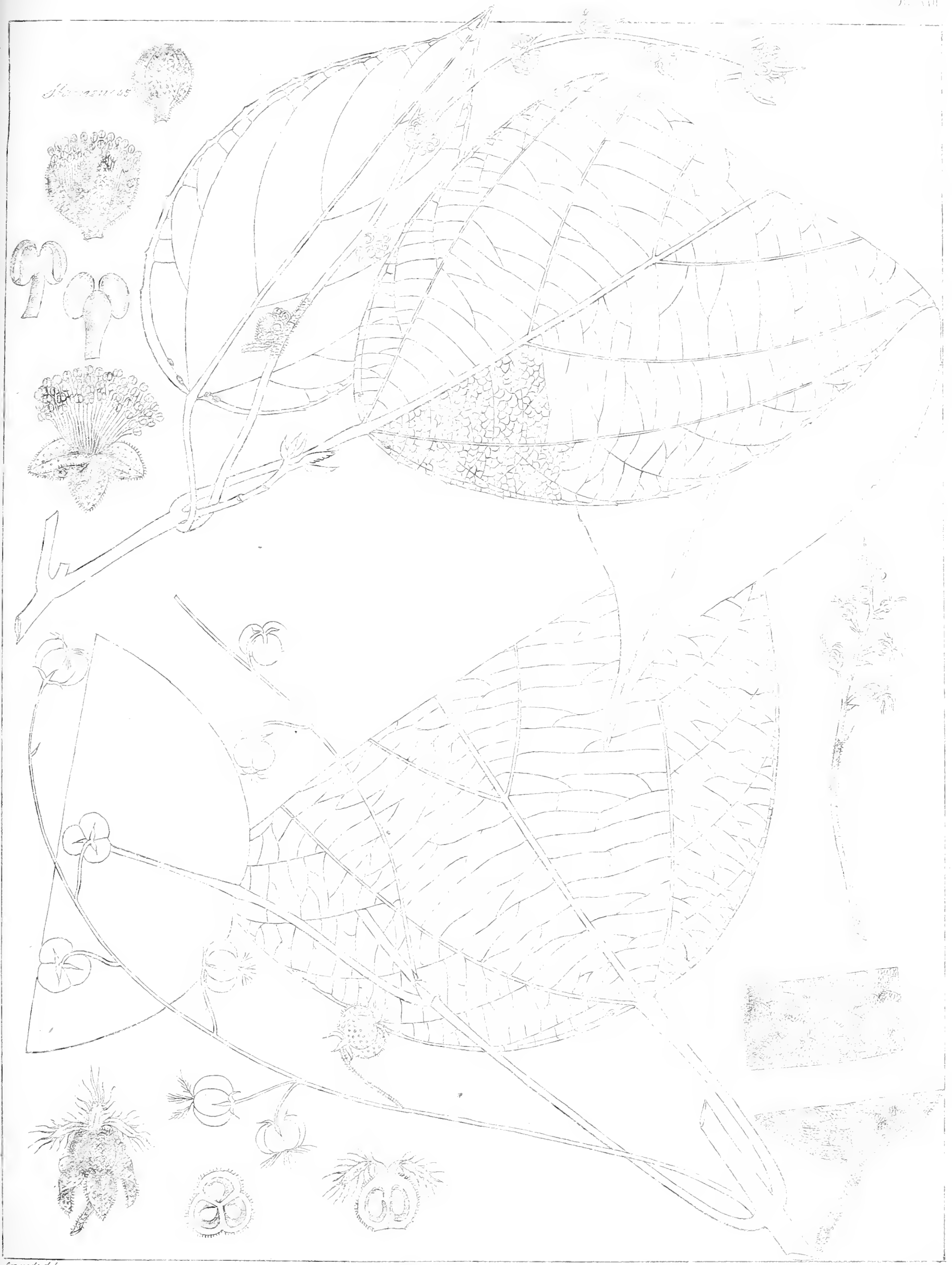












*Stomatus*

Conrado del.

*Mollus distans, Nutt.*



4

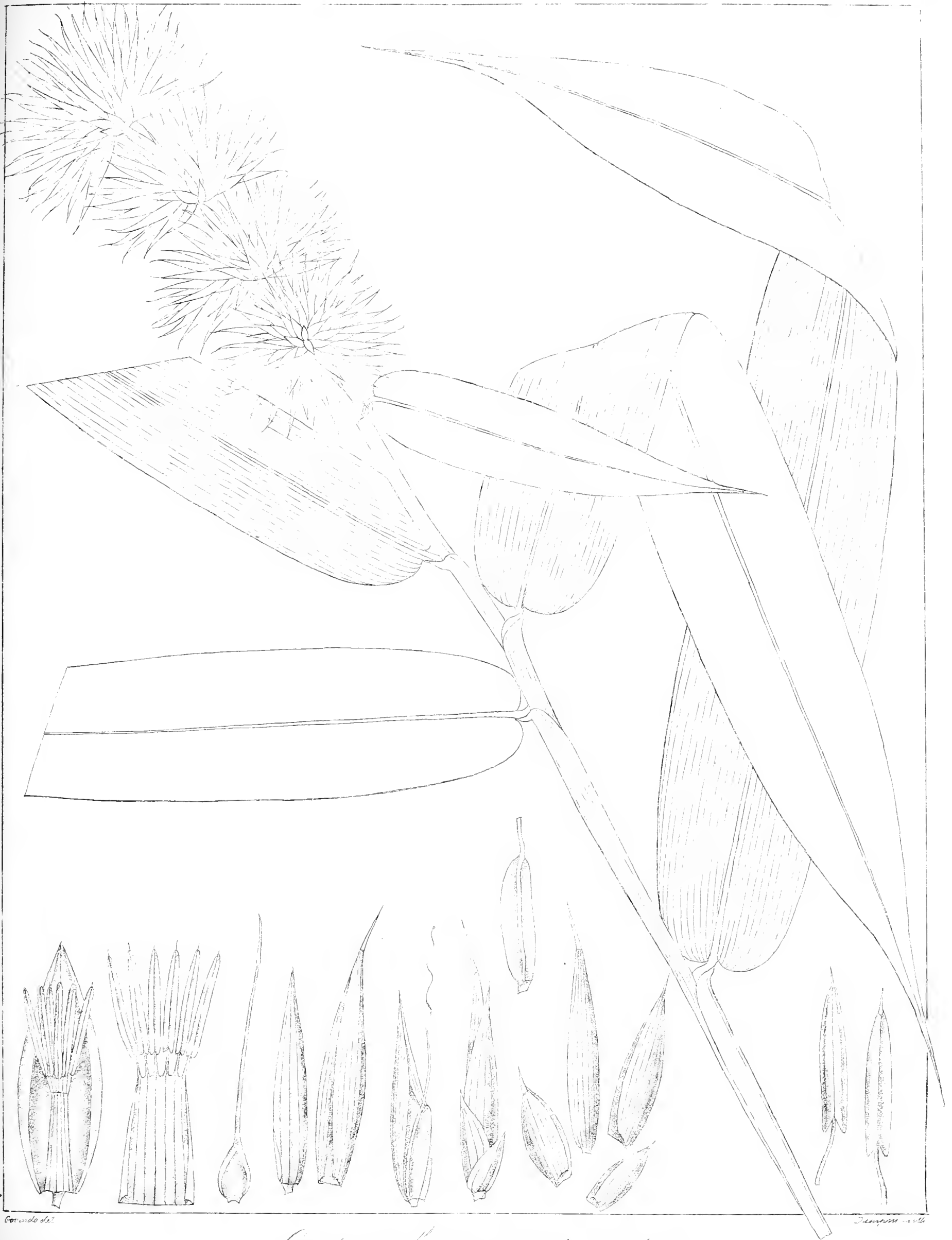
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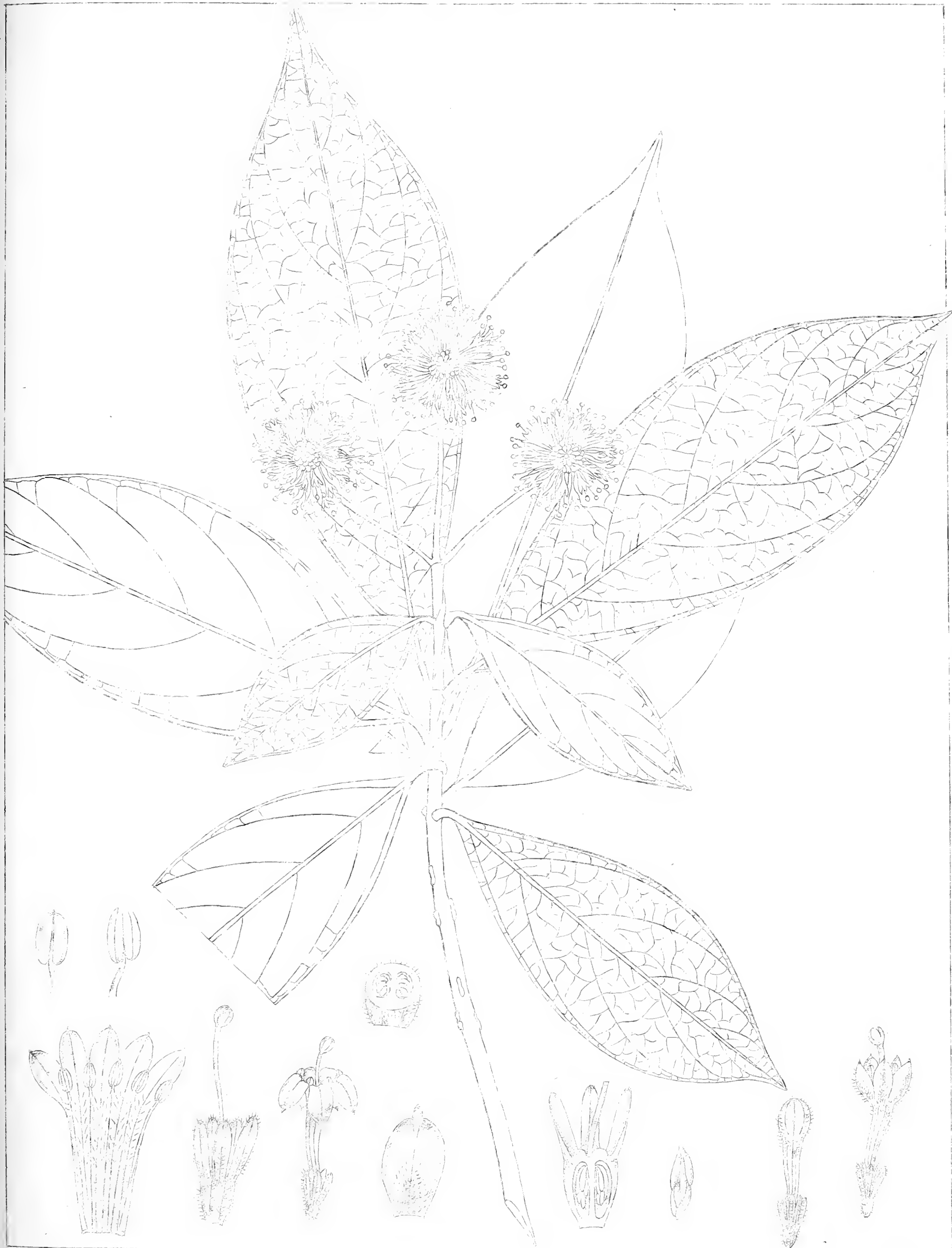


Concordia 1881

Thompson 1881

*Cyrtanthera monostigma* (Budd.)





*Vauclaea pedunculata*, Willd.





*Psychotria hemisphaerica*, Walp.

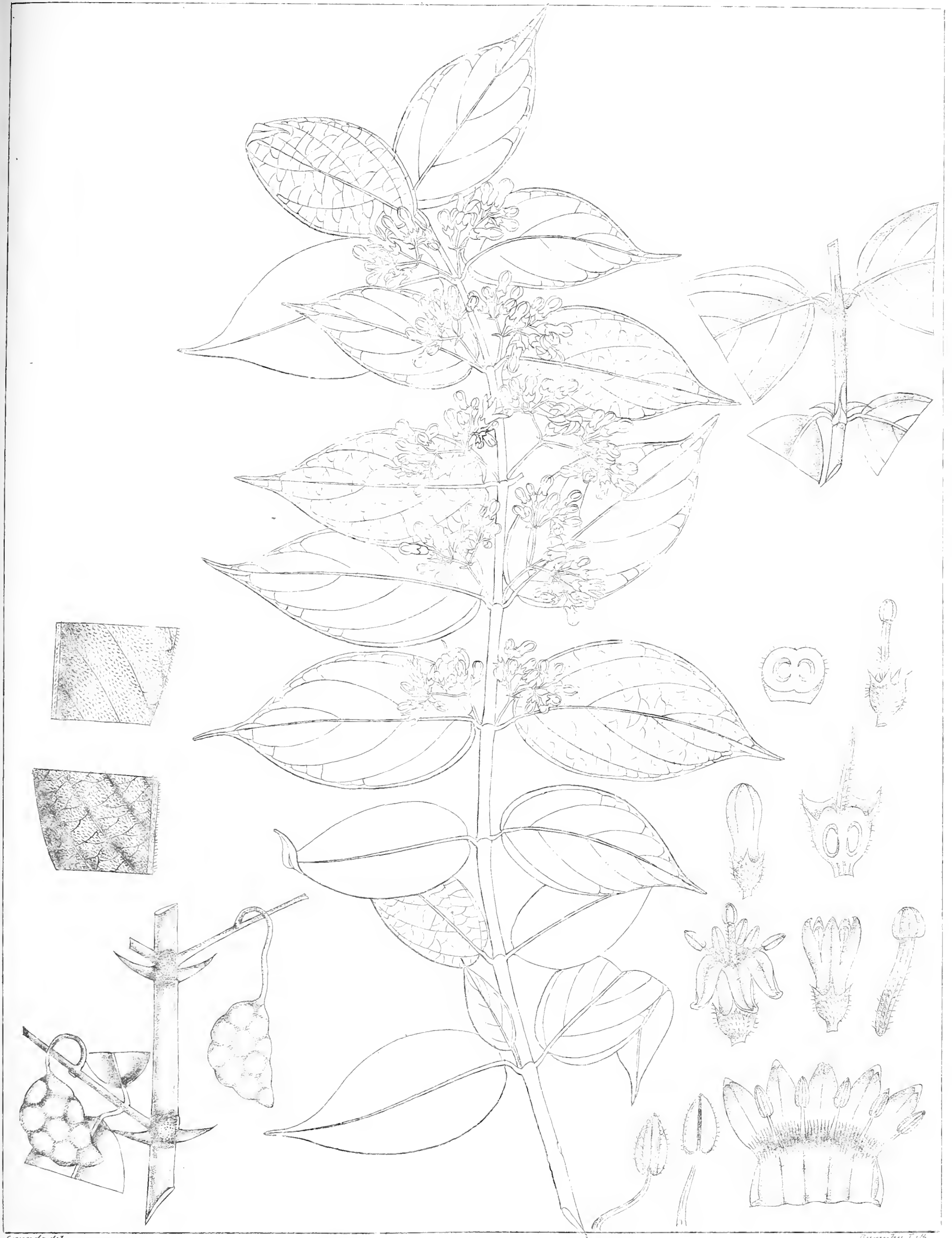






*Randia Deccanensis, Bedd.*

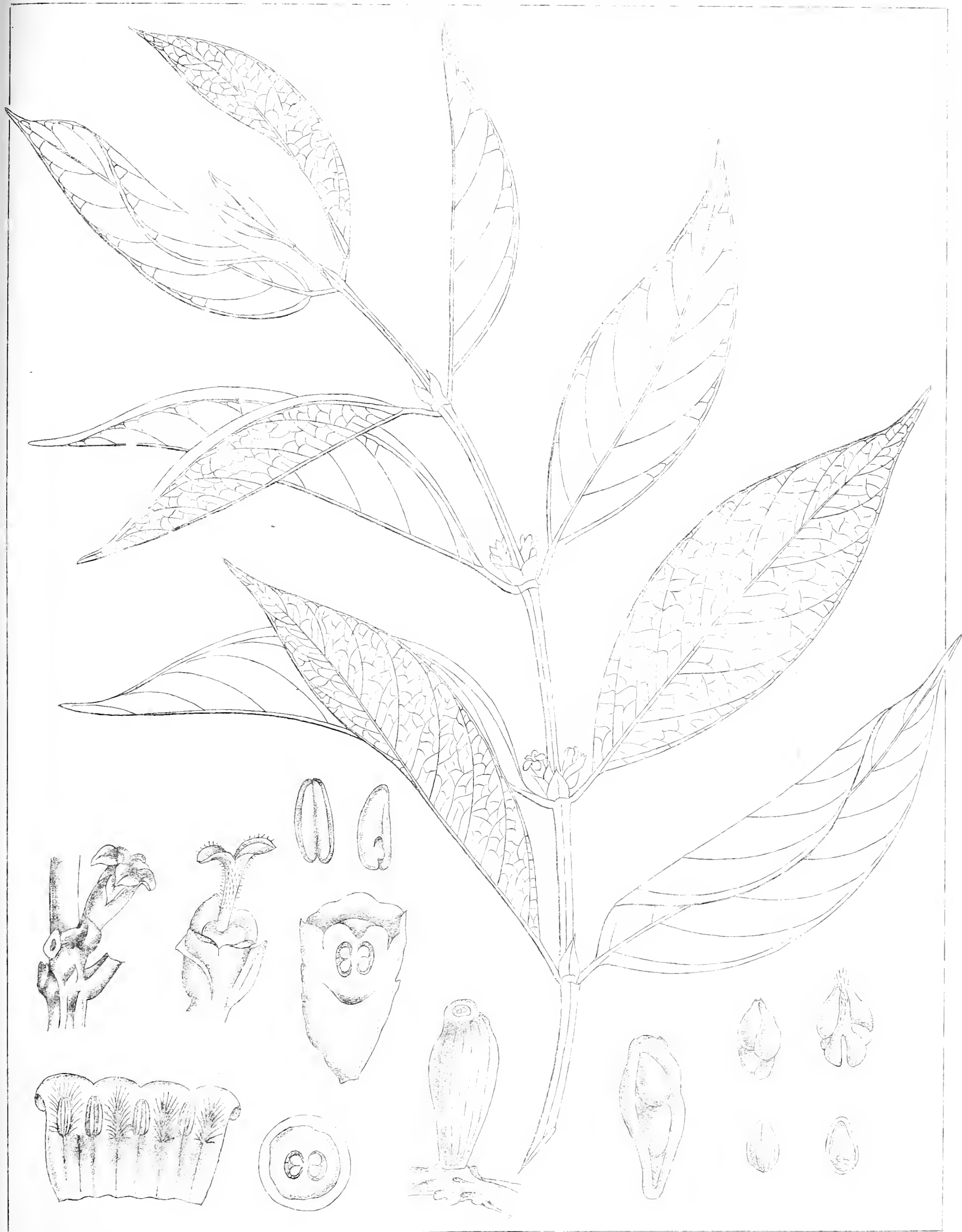












*Scyphostachys coffeoides* Kun





## EUPHORBIACEÆ.

**AGROSTISTACHYS INDICA.** (Dalz.) A small tree up to 15 feet high, leaves subcoriaceous or coriaceous, 5-15 inches long by 1-6 inches broad, from narrow lanceolate elliptic to very broadly ovate, very coarsely serrated with the serratures incurved, or sometimes quite entire, margin much thickened, glabrous on both sides, primary veins very prominent and thick very variable in number, transverse veinlets also very prominent, petioles up to 2½ inches long, stipules ovato-lanceolate subulate acuminate striated soon deciduous, bracts broadly triangulari-ovate acute concave sericeous, petals obovate, connective obtuse produced beyond the anther-cells. Ovary hairy. *Dalz. l. c.*

Very common in our dense Ghat forests from Canara down to South Tinnevely, 3-5000 feet elevation, also on the Bombay ghats, and in Ceylon 1-2000 feet elevation, and in Birmah and the Andamans.

PLATE No. CCXLI.

## BIXINEÆ.

**ASTERIASTIGMA MACROCARPA.** (Bedd.) A large tree, diæcious, young shoots minutely aureo-pubescent, leaves exactly oblong with a short sudden point at the apex, quite entire, above glabrous or the costa very minutely pubescent towards the base, beneath glabrous except the costa and primary veins (which are minutely strigose) and furnished with very minute white dots (under the lens) 10-12 inches long by 3½ broad, venation very prominent beneath, the primary veins much raised about 7 on each side alternate, veinlets parallel prominent with the venules prominent and beautifully reticulated, petioles 9-10 lines long pubescent, *female* flowers whitish about 1 inch across in few-flowered 1-1½ inches long fascicles on the older branches, pedicels 4-5 lines long thick, calyx segments rounded minutely puberulous or subglabrous, petals 12 shorter than the calyx ciliate oblong, stamens about 60 in 2 rows, anthers oblong small opening longitudinally along the outer edge, ovary sessile, placentas 6-7. *Male flowers* in short axillary many-flowered racemes, petals 16, stamens about 70 in 3 rows rudiment of ovary 8-lobed. *Bedd. Flora Sylvatica* page ccxxxvi and *Analytical Plate* 28 *male flowers* only; *tab. cclxvi.* the female tree.

Travancore ghats, 2-3000 feet elevation.

PLATE No. CCXLII.

## LEGUMINOSÆ.

**SMITHIA SETULOSA.** (Dalzell.) 3-4 feet high, stems hispid with long deflexed hairs, leaves 4-5 inches long, leaflets 5-10 pair linear-oblong ending in a bristle glabrous on both sides, the margins long ciliate about 1-1½ inches long by 3-5 lines broad, the common petiole hispid, stipules adnate setaceo-acuminate scariose glabrous, flowers in a large terminal panicle, calyx striated strigose and ciliate, the segments entire very unequal the upper large suborbicular or obovate the lower boat-shaped acute, bracts small ovate nearly half as long as the calyx, flowers bright yellow, legume 10-12 seeded reticulated. *Dalz. in Hook. Journ. Bot.* iii. p. 208.

Common in the Wynaad and elsewhere on our Western Ghats and in the Bombay Presidency; the specimen figured was gathered at the head of the Carcoor ghat at nearly 3000 feet elevation.

PLATE No. CCXLIII.

**SMITHIA CAPITATA.** (Dalz.) Stems glabrous 1-2 feet, leaves 1½-2½ inches long, leaflets 9-15 pair linear oblong obtuse ending in a bristle ciliate at the margins and on the costa beneath with long hairs, 4-6 lines long by 1½-2 lines broad, the common petiole hispid, stipules adnate terminating in a bristle, flowers numerous in spherical solitary terminal heads, bracts obovate equalling the calyx and similar to its segments, calyx segments glabrous undivided but very coarsely toothed the teeth ending in very long bristles, legume 5-7 seeded glabrous smooth. *Dalz. l. c.*

The Anamallays, Bolampatty hills and elsewhere on our Western Ghats and on the Bombay Ghats; the specimen figured was gathered on the Bolampatty hills near Coimbatore.

PLATE No. CCXLIV.

## ACANTHACEÆ.

**EBERMAIERA LIGULATA** (Bedd.) Shrubby erect 2-3 feet, stems terete glanduloso-pubescent, leaves membranaceous 1-3½ inches long by ½-¾ inch broad spatulate and gradually decurrent down the petiole entire or obscurely crenate, glanduloso-pubescent

when young, glabrous or subglabrous in age, flowers axillary solitary, bracteoles 1-nerved subspathulate from shorter to much longer than the calyx glanduloso-pubescent, as is the calyx; calyx cleft to nearly the base 4 of the segments subequal in length 2 being subulate and 2 spathulate, the 5th segment much longer and spathulate, corol about 4-5 lines long infundibuliform, anthers versatile fixed to the filaments near the apex, filaments hairy, stigma bifid the lower tooth again inconspicuously bifid. Capsule linear glabrous 3-4 lines long.

Coorg, about Kiggatnad, not observed elsewhere.

PLATE No. CCXLV.

**ADENOSMA PINNATIFIDA.** (Dalz.) Herbaceous weak, stems obtusely 4-sided 1-2 feet all the parts glanduloso-pubescent, leaves 3-4 inches long  $1-1\frac{1}{2}$  broad petiolate deeply pinnatifid the segments 6-8 on each side linear-oblong obtuse, subentire or lobulate, flowers solitary in the axils sessile, or congested in heads at the apex of the branchlets, bracts and bracteoles oblong foliaceous entire or sub-lobulate a little shorter than the calyx, calyx segments linear entire or lobulate, corol 5 lines long the palate bullate, filaments hairy only at the very base, ovary and base of the style puberulous. *Nomaphila pinnatifida*, Dalz. in *Hook. Journ. Bot.* iii. 38.

Canara and Concan on the banks of streams.

PLATE No. CCXLVI.

**RUNGIA APICULATA.** (Bedd.) An erect plant stems lineolate 1-2 feet, leaves from ovate or ovato-lanceolate to narrow linear lanceolate acute or obuse membranaceous minutely lineolate entire or slightly scalloped  $2\frac{1}{2}$ -4 inches long by 5-12 lines broad, petioles up to 1 inch long, spikes axillary and terminal minutely glanduloso-puberulous, more or less secund, bracts ovate or rhomboid ovate with a long subulate acumination and a diaphanous margin, bracteoles linear-subulate like the equal calycine segments but a little shorter, corol 5 lines long the upper lip much shorter than the lower emarginate the lobes rounded, the lower lip with 3 short rounded lobes, anther-cells unequal oblique the lower one spurred, capsule pubescent.

Tinnevely hills, 2-3000 feet, beds of rivers, ovate and linear leaves often occur on the same individual.

PLATE No. CCXLVII.

**CALOPHANES DAZELLII.** (Anders. MS.) Shrubby, stems villous or woolly, all the parts except the capsule glanduloso-pubescent, leaves ovate  $1\frac{1}{2}$  inches long by  $\frac{3}{4}$  inch broad, submembranaceous prominently nerved beneath, peduncles axillary generally 3-flowered, bracteoles shorter and broader than the calyx, calycine-segments subulate  $\frac{1}{2}$  as long as the corol, corol pubescent about 1 inch long, anthers spurless.

Poonah, on rocky hills, it has thicker, much smaller, more prominently veined, and more hirsute leaves, and fewer flowers than the common *C. vagrans*, and its spurless anthers at once distinguish it.

PLATE No. CCXLVIII.

**GYMNOSTACHYUM HIRSUTUM.** (Anders.) Stem erect 2-3 feet, leaves ovate acute attenuated at the base scabrous above, hirsute on the veins and veinlets beneath, 5-7 inches long by  $2\frac{1}{2}$ -3 inches broad, petioles up to 2 inches long, panicles axillary and terminal very hirsute, bracts ovate foliaceous, bracteoles linear-subulate ciliate nearly equalling or a little longer than the calyx, calyx 5-cleft to nearly the base the segments like the bracteoles, corol greenish-yellow equalling or a little longer than the calyx, hairy on the outside, the limb shortly bilabiate the lobes rounded, filaments hairy at the base, anthers white, ovary and style glabrous, capsule 8-12 seeded. *And. in Thw. En. Pl. Zey. p.* 233.

Ceylon, central provinces, at 3-5000 feet elevation.

PLATE No. CCXLIX.

**GYMNOSTACHYUM OVATUM.** (Anders. MS. in Herb. Bedd.) Stem erect 4-sided glanduloso-hirsute as is the whole plant, leaves ovate acute attenuated at the base entire furnished with a few hairs above and hirsute on the veins beneath,  $2\frac{1}{2}$ -3 inches long by nearly 2 broad, racemes terminal and axillary often paniculate rather lax and somewhat recurved, bracts and bracteoles small and subulate, calyx cleft to nearly the base the segments subulate and glanduloso-ciliate, corol 2-3 times as long as the calyx a little

hairy outside, limb shortly bilabiate, the lobes rounded, stamens included the filaments much dilated in the centre filiform below ciliate, anther cells oblique the connective hairy, capsule 6-8 lines long a little hairy, seeds about 8.

On the Myhendra hills, Berhampore, 2000-4000 feet elevation.

PLATE No. CCL.

**GYMNOSTACHYUM GLABRUM.** (Dalz.) Suffruticose glabrous or subglabrous except the inflorescence, stems obtusely 4-sided, leaves ovate to elliptic acuminate dentate decurrent in a wing down the petiole, 6-11 inches long (of which the petiole is  $1\frac{1}{2}$ - $2\frac{1}{2}$  inches), panicles glanduloso-puberulous terminal large up to nearly 1 foot long, bracteoles subulate small, calyx deeply 5-cleft  $2\frac{1}{2}$ -3 lines long, corol 8-9 lines long puberulous on the outside, white mottled with purple inside, the tube irregularly curved, limb bilabiate, upper lip 2-fid lower 3-fid, filaments and style hairy at the base, ovary and capsule glanduloso-pubescent, seeds numerous. *Dalz. in Hook. Journ. of Bot.* ii. 338.

South Concan, in shady places.

PLATE No. CCLI.

**GYMNOSTACHYUM PANICULATUM.** (Anders.)  $1\frac{1}{2}$ -2 feet generally all of a purplish tint, stem somewhat 4-sided, leaves ovate subacute attenuate at the base on to the petiole, a little hirsute or puberulous or quite glabrous, 3-7 inches long by  $1\frac{1}{2}$ - $2\frac{1}{2}$  inches broad, panicles terminal many-flowered, flowers crowded purplish, calyx 2 lines long cleft to nearly the base, segments short lanceolate glanduloso-tomentose, corol 7 lines long externally a little tomentose, tube curved, limb somewhat bilabiate the 5 lobes rounded, base of the filament and the ovary hairy, style glabrous, capsule 1 inch long hairy. *Anders. in Thw. En. Pl. Zey. p.* 232.

Ceylon, Saffragram and Galle districts, at 1000-2000 feet elevation.

PLATE No. CCLII.

**GYMNOSTACHYUM LATIFOLIUM.** (Dalz.) Suffruticose glabrous, stem 3-4 feet 4-sided, leaves exactly ovate to suborbicular acute entire or subcrenulate with the 3-4 inch petiole about 1 foot long by 5 inches broad, panicles or racemes axillary 3-5 inches long, bracts and bracteoles subulate minute, calyx segments 2-3 lines long subulate, flowers  $1\frac{1}{4}$  inch long slightly puberulous outside the limb very shortly bilabiate the upper lip slightly emarginate, filaments hairy except at the apex, anthers subincluded the cells parallel hairy and ciliate, ovary style and capsule glabrous, capsule 1 inch long many-seeded. *Cryptophragmium latifolium, Dalz. in Hook. Kew Journ.* ii. 137.

South Canara jungles about Eed, Mysore and Bombay ghats. In leaf very like *Phlogacanthus latifolius* of Wight, which is common in Coorg, but the flowers in that are much more numerous, more deeply bilabiate, the anthers glabrous and much exserted.

PLATE No. CCLIII.

**GYMNOSTACHYUM SERRULATUM.** (Nees.) The whole plant glanduloso-pubescent. Stem erect, leaves ovate acute serrate about 6-7 inches long by  $3\frac{1}{2}$  broad, petioles up to  $2\frac{1}{2}$  inches long, panicles axillary sub-spicate, flowers secund, bracts and bracteoles subulate scarcely longer than the very short pedicel, calyx cleft to nearly the base, segments subulate 2-3 lines long, corol 7-8 lines long, tube slightly curved, limb very shortly bilabiate the 5 lobes rounded, filaments hairy at the base, ovary and style hairy, capsule hairy 7-8 lines long the cells 12-seeded. *Cryptophragmium serrulatum, DC. Prod.* xi. 95.

South Canara ghats.

PLATE No. CCLIV.

**GYMNOSTACHYUM THWAITESII.** (Anders.) Stem very short tomentose, leaves subradical ovate obtuse unequal at the base hirsute about 4 inches long by  $1\frac{1}{2}$  broad, petioles  $\frac{1}{2}$  to 1 inch long tomentose, panicle pubescent terminal elongate many flowered naked at the base, the branchlets opposite cymiform lax, bracts sulcate, calyx  $1\frac{1}{2}$ -2 lines long the segments subulate, corol bilabiate 6 lines long, capsule 7-8 lines long a little hairy. *Anders. in Thw. En. Pl. Zey. p.* 232.

Ceylon, Ambagamwa district.

PLATE No. CCLV.

**BARLERIA PILOSA.** (Wall.) A small weak much branched undershrub, the young branches glanduloso-pilose, leaves exactly ovate inconspicuously toothed or subentire, acute, 1-2 inches long by  $\frac{1}{2}$ - $\frac{3}{4}$  inch broad glanduloso-pilose, petioles 3-5 lines long pilose, peduncles axillary very short 1-flowered, bracteoles linear reflexed much shorter than the calyx pilose, the larger calyx segment 6-8 lines long equal ovato-orbicular repando-dentate ciliate and slightly hairy subscariose and prominently 7-nerved and reticulated, the interior segments small narrow lanceolate dentate, corol about  $1\frac{1}{2}$ -2 inches long pale sky-blue glabrous or subglabrous, tube incurved, lobes obtuse, stamens 2 fertile, and 3 perfectly sterile apiculate staminodes, stigma truncate. *DC. Prod. xi. 234.*

Tinnevely, common on the hills about Courtallum, 1000-1500 feet elevation.

PLATE No. CCLVI.

**BARLERIA MONTANA.** (Nees.) Suffruticose, branches glabrous the nodes distant, leaves oblongo-elliptic acute attenuated into the petiole, sparingly hairy and the margin ciliate when young, at length glabrous but lineolate above, about 5 inches long by  $1\frac{1}{2}$  broad, petioles 4-10 lines long, flowers axillary solitary sessile, bracts linear small a little hairy, the larger calyx-segments herbaceous oblongo-elliptic  $1-1\frac{1}{4}$  inch long equal entire-ciliate and a little hairy or glabrous, the inner segments linear subulate much shorter, corol  $2-3\frac{1}{2}$  inches long blue, lobes obtuse, staminodes 2 setaceous and without any approach to anthers. *DC. Prod. xi. 232.*

Anamallays and elsewhere on our Western ghats up to 4000 feet, but not common; also in Central India, Jubbulpore, &c.

PLATE No. CCLVII.

**BARLERIA BEDDOMEI.** (Anders. MS.) Shrubby, stems terete strigose, leaves lanceolate acute entire 3-4 inches long by  $1-1\frac{1}{4}$  broad strigose, petioles 2-3 lines long, flowers axillary subsessile solitary, bracteoles 2 small linear recurved strigose as is the calyx, the exterior calyx-segments large foliaceous lanceolate the lower one minutely bifid at the apex, the interior segments much smaller linear-subulate, corol hirsute on the outside  $3\frac{1}{2}$ -4 inches long pure white, tube long slender, the fertile pair of stamens nearly as long as the corol, a pair of very short effete stamens with the connective of the sterile anthers spurred at the back, a 5th minute perfectly effete filament between the latter.

Siughur, Bombay presidency.

PLATE No. CCLVIII.

**STROBILANTHES GARDNERIANUS.** (Nees.) 1-2 feet, stems hirsute upwards, leaves ovate obtuse subcordate at the base, sessile crenato-serrate scabroso-hirsute on both sides about 2 inches long by  $1\frac{1}{2}$  broad, spikes axillary and terminal, bracts large oval glanduloso-hirsute as are the calyx and bracteoles, bracteoles lanceolate large, calyx cleft about  $\frac{1}{2}$  way down, the segments lanceolate acute, corol purple about 1 inch long a little hairy outside the lower half of the tube much contracted. Stamens 4 monadelphous the 2 middle ones shorter, filaments hairy at the very base only, ovary hairy at the apex, style glabrous. *Endopogon Gardnerianus, DC. Prod. xi. 723.*

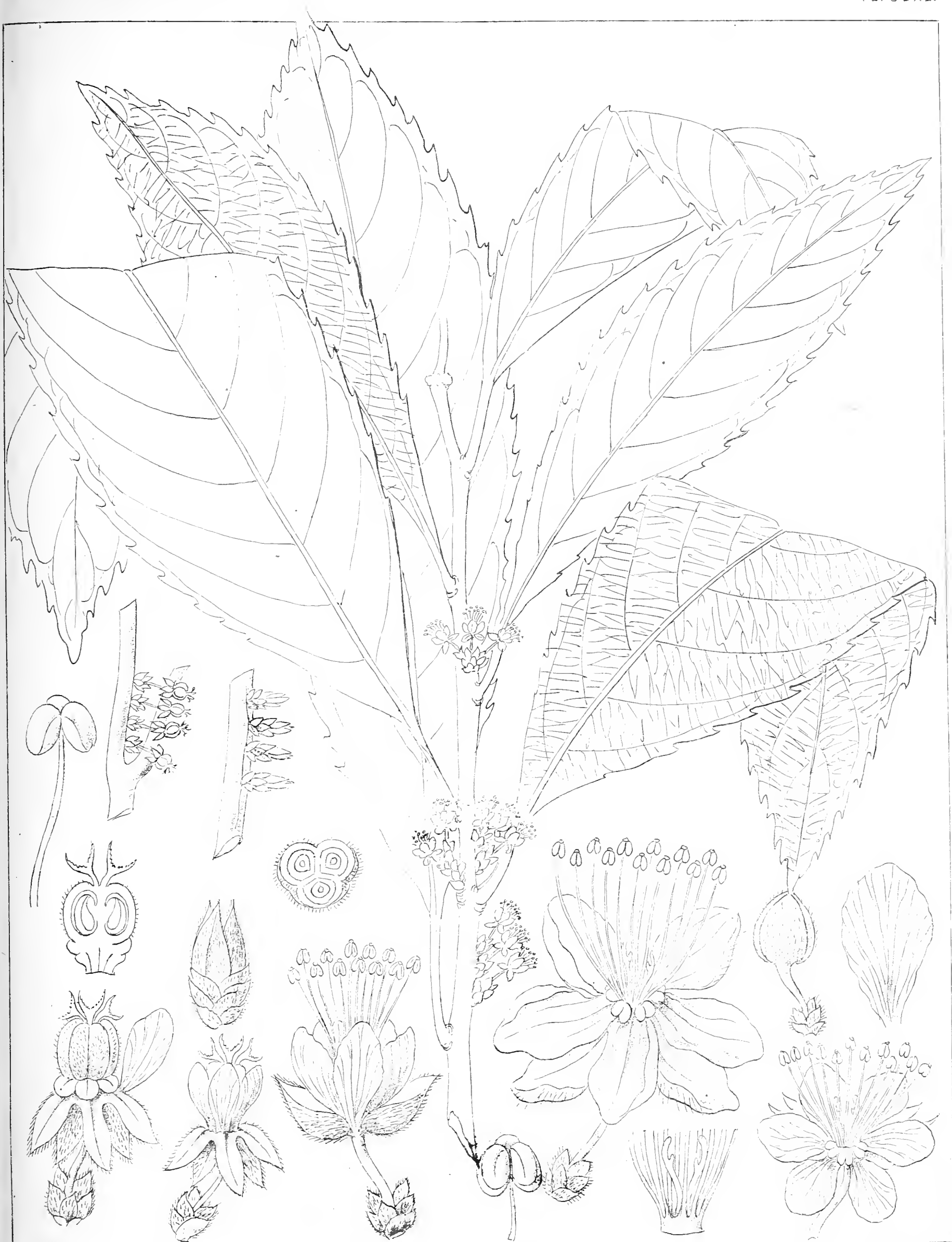
Ceylon, Hantani, at 4000 feet elevation.

PLATE No. CCLIX.

**STROBILANTHES VESTITUS.** (Nees.) Herbaceous hirsute. Stem erect, leaves oval or oval-oblong acuminate, the base obtuse or acute, dentate, hirsute on both sides, 5-8 inches long (without the petiole) by  $1\frac{1}{2}$ - $3\frac{1}{2}$  broad, petioles up to 3 inches long. Spikes axillary simple or branched the peduncles often geniculate at the apex, flowers 6-8 in a short oblong head, bracts oval sessile acuminate longer than the calyx densely ciliate and sparingly hairy, bracteoles lanceolate hirsute a third shorter than the calyx, calyx-lobes subequal lanceolate hirsute, flowers glabrous large  $1-1\frac{1}{2}$  inch long the tube contracted only at its base, the mouth widely campanulate, stamens monadelphous equal much exerted, filaments ovary and style glabrous. *Nees. in. DC. vol. xi. p. 180.*

Ceylon, Matturate, elevation 5-7000 feet.

PLATE No. CCLX.



*Agrostistachys Indica* Dalz.





Grounds del.

D. Donnell

*Asteriastigma mactocarpa* (Brid.)

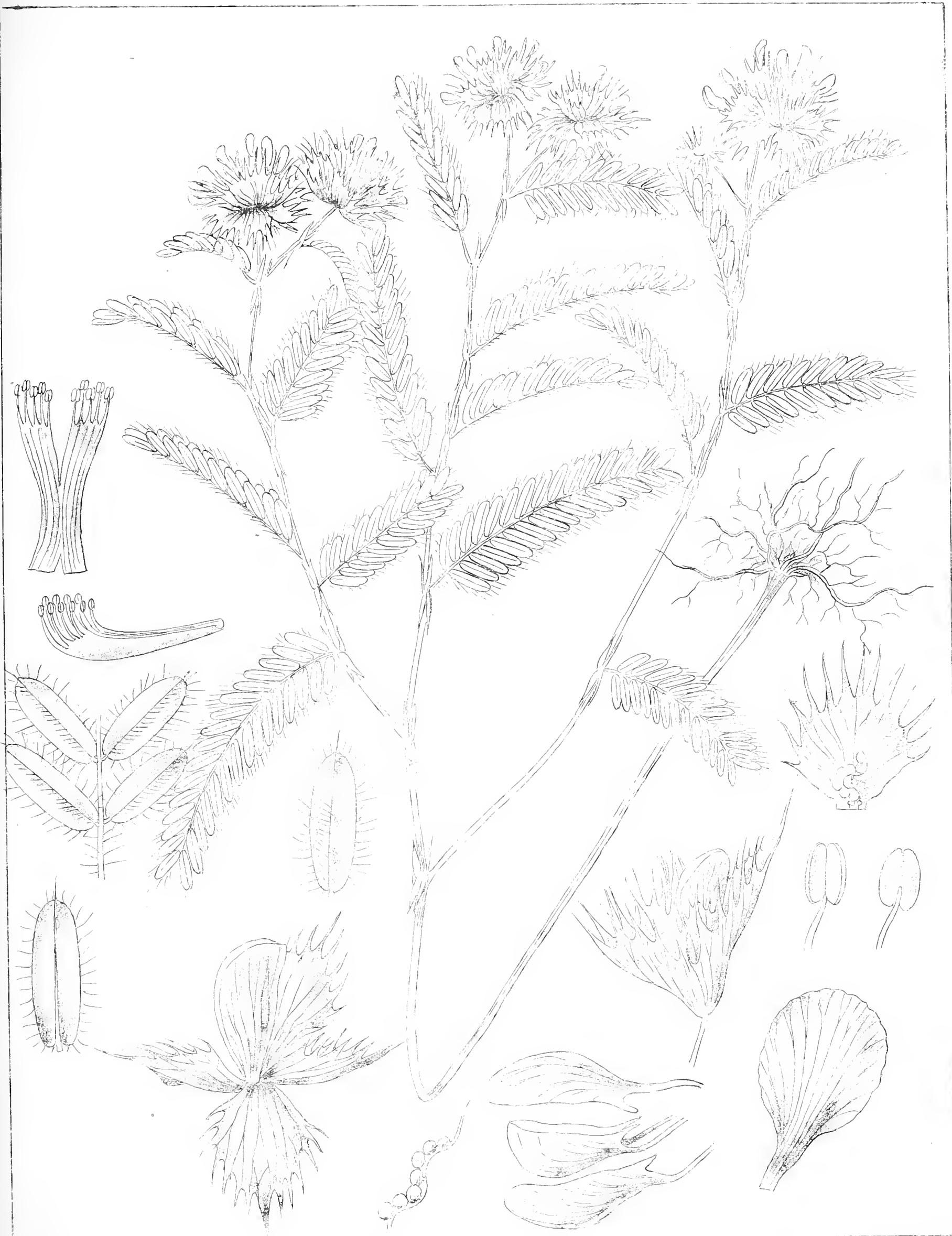




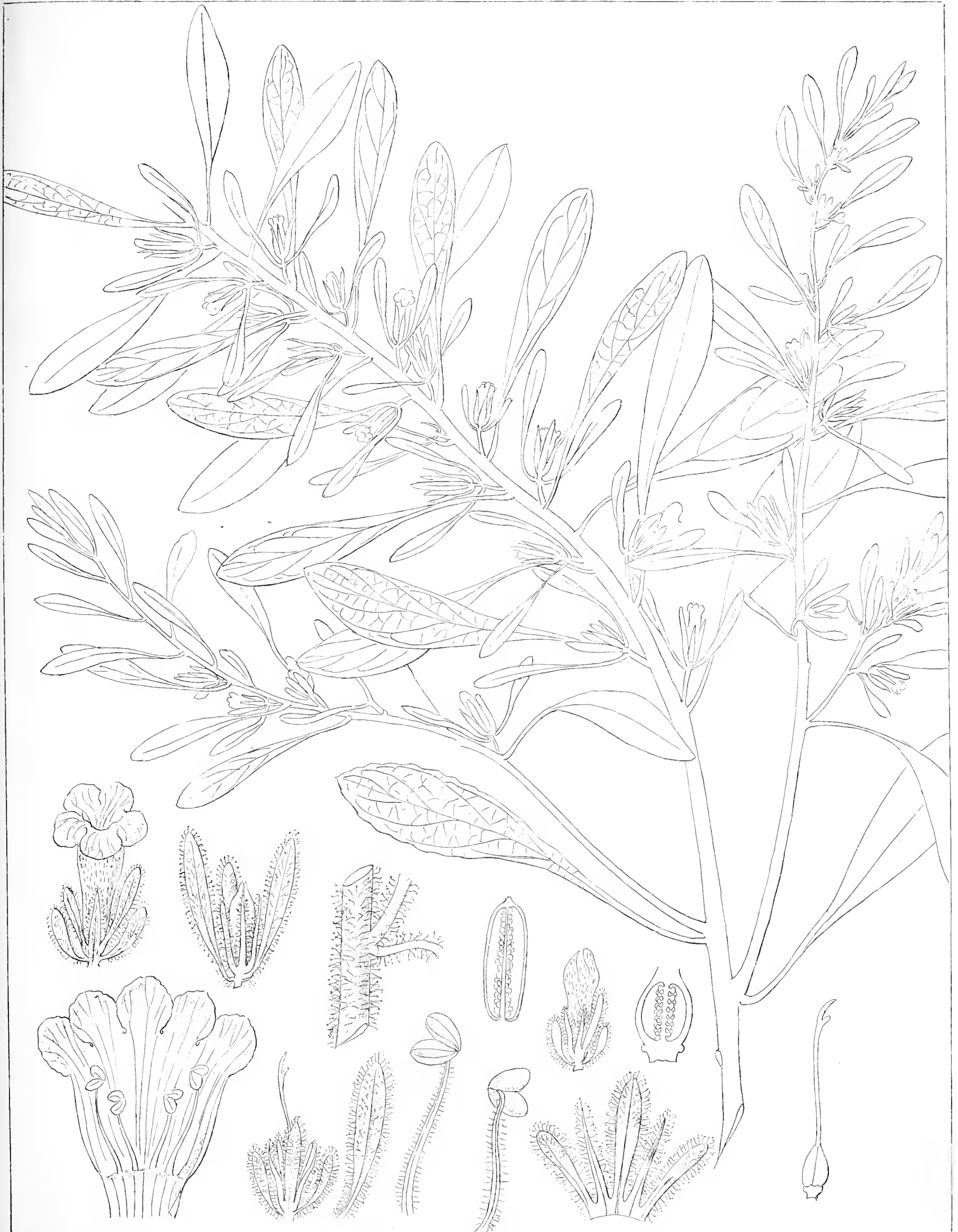


*Smilax scabrosa*, (Pursh.)









*Elasmoloma ligulata* (Bedd.)





Covered del.

Thompson 1. 1. 1.

*Adenosma pinnatifida* Daly







C. G. S. del.

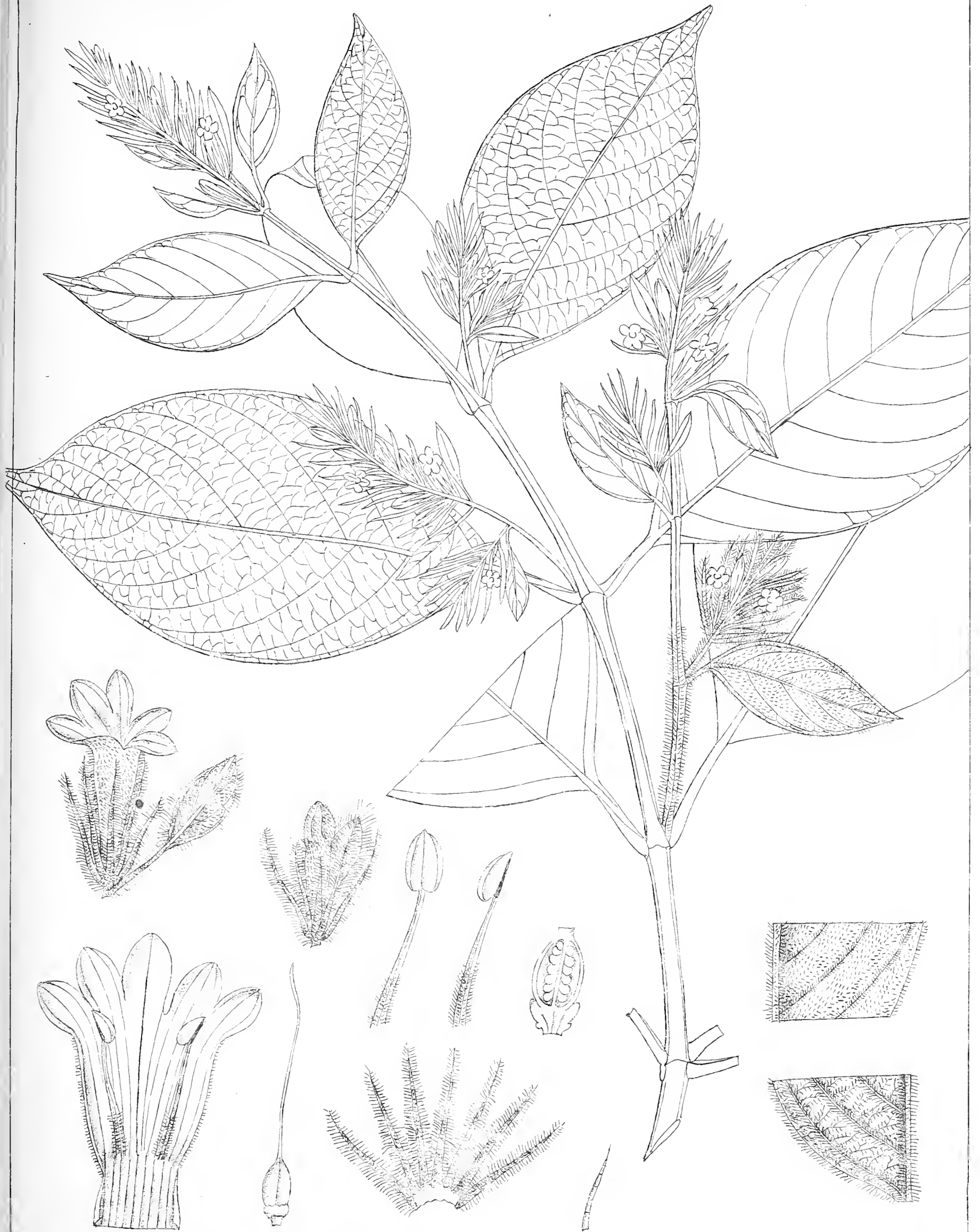
Diagn. et. 18

*Ruyon spicata* L. & H. B. K.









*Gymnostachyum hirsutum* (Anders.)















Griseb. del.

Dumort. sculp.

*Gymnostachyum paniculatum* Griseb.









*Gymnocostachyum serrulatum* (Nes.)







Grounds del

*Gynostegium sp.*





*Barleria pilosa* Willd.





*Parleria montana* Pursh





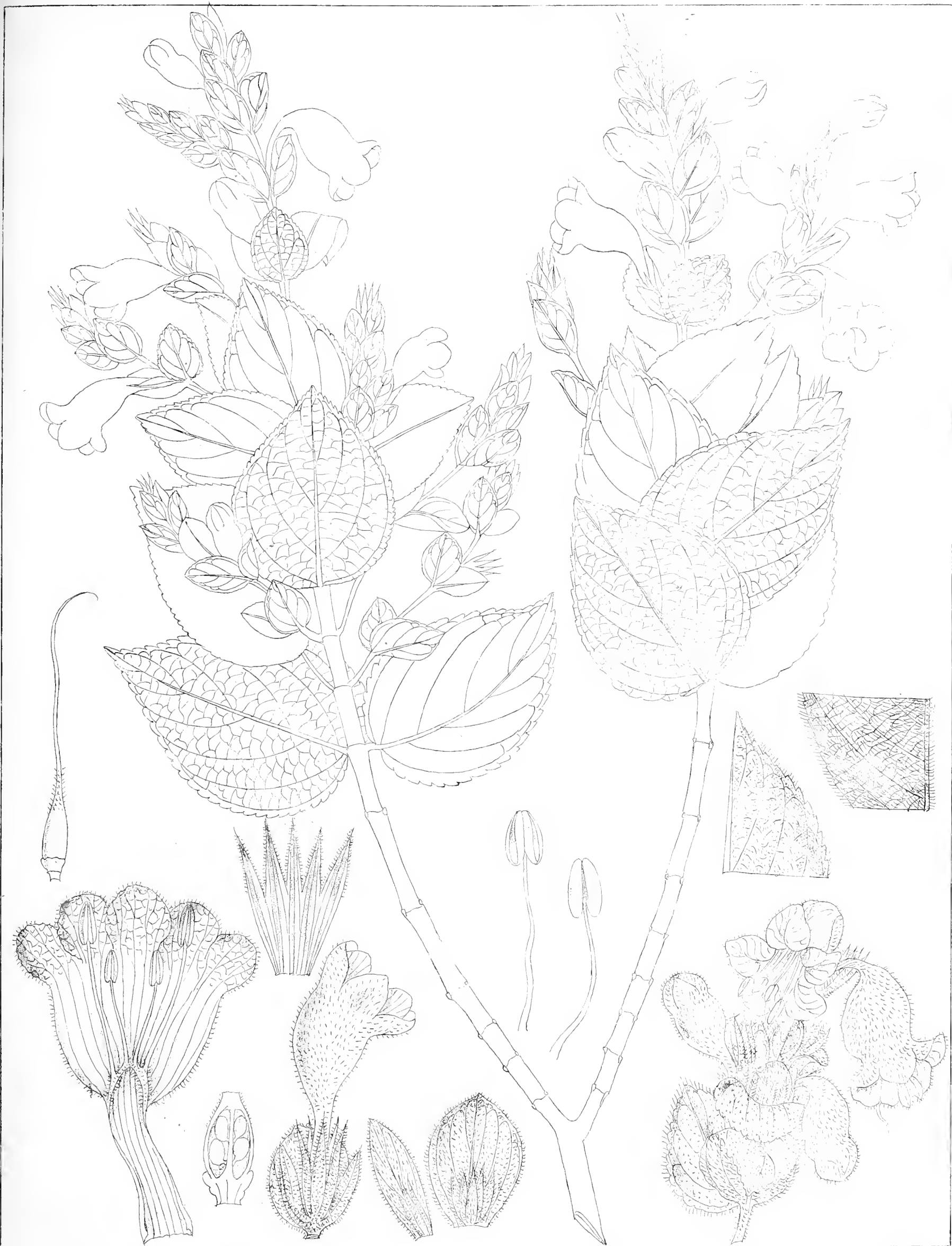
C. G. D. del.

D. G. D. lith.

*Barleria Beddomei*, J. Anders.







Geometris del.

Dumortier 1876

*Strobilanthes Gardnerianus* (Nees)





Governo del

1/10/77, L20

*Strobilanthes vestitus*, Nicot.



## ACANTHACEÆ.

**STROBILANTHES ARNOTTIANUS.** (Nees.) Shrubby erect, the whole plant hispid with whitish hair, leaves very scabrous above hairy beneath, oval or ovate to cordate acute and dentate, about 2 inches long by  $1-1\frac{1}{2}$  broad, petioles unequal up to 1 inch long, peduncles axillary as long or longer than the leaves simple or branched geniculato-flexuose, spikes oval few flowered, bracts leafy oval, bracteoles linear lanceolate a little shorter than the calyx, calyx about 6 lines long cleft to nearly the base the segments linear-lanceolate densely albo-strigose, corol 1 inch long whitish, campanulate the tube not much contracted the mouth wide, stamens 4 exserted the inner 2 a little shorter than the outer ones monadelphous in a tube at the base, filaments glabrous, ovary and style hairy. *DC. Prod.* xi. 179.

Ceylon, Newera Ellia, allied to *S. Perottettianus* and *vestitus*.

## PLATE No. CCLXI.

**STROBILANTHES HOOKERII.** (Nees.) 5-6 feet high leaves oval to oblongo-elliptic acuminate crenate, 4-6 inches long by about 2 inches broad scabrous and a little hairy on both sides but particularly beneath, petioles  $1-1\frac{1}{2}$  inches long, spikes axillary naked below, leafy towards the apex glabrous, from shorter to about as long as the leaves, bracts sessile broad orbicular subglabrous or ciliate and more or less hairy, bracteoles spatulate small, calycine segments lanceolate acute equal a little hairy, corol about  $1\frac{1}{2}$  inches long broadly campanulate at the mouth much exceeding the bracts, lobes rounded retuse, white marked at the jaws with 3 purple longitudinal lines, stamens 4 all of the same length slightly monadelphous at the base, stamens exserted, filaments ovary and style glabrous. *DC. Prod.* xi. p. 185.

Ceylon, central provinces, elevation 7000 feet, nearly allied to *S. calycinus* and *Bolampattianus*.

## PLATE No. CCLXII.

**BARLERIA VESTITA.** (Anders.) Herbaceous 6-8 feet, hirsute the hairs patent, leaves ovato-elliptic attenuate at both ends, petiolate or subsessile entire, 6-12 inches long; cymes long peduncled axillary or terminal sparingly flowered lax a little shorter than the leaves, bracts very narrow lanceolate acute. Calyx fulvous strigose the segments acute unequal lanceolate, the two inner ones much smaller, the lower one entire or minutely bifid, corol white or pale purple narrow infundibuliform 3 inches long the lobes a little shorter than the tube, stamens 2 long and fertile and 3 very short and effete, filaments ovary and style glabrous. *Anders. in Thw. En. Pl. Zey.* p. 230.

Ceylon, central provinces and in the Saffragram districts up to 5000 feet elevation.

## PLATE No. CCLXIII.

**BARLERIA NUTANS.** (Nees.) Stem shrubby, leaves elliptic acuminate, glabrous and shining lineolate, 5-7 inches long by about 2 inches broad, petioles  $1-1\frac{1}{4}$  inches long. Spikes axillary and terminal as long or longer than the leaves naked below glanduloso-hirsute, bracts and bracteoles small linear acute, calyx divisions lanceolate acute the upper one longer than the others 5-nerved, the lower one bifid at the apex, the 2 lateral ones narrow, flowers 1 inch long bluish-purple, stamens 2 long and fertile 2 very short and effete, filaments and apex of the ovary a little hairy. *Nees in DC.* xi. 227.

Ceylon, central provinces, 1000-3000 feet elevation.

## PLATE No. CCLXIV.

**GYMNOSTACHYUM CEYLANICUM.** (Arnt. and Nees.) Stems pubescent 1-3 inches long rooting between the leaves, leaves spatulate to oblong or oval often decurrent down the petiole obtuse or subacute, 4-6 inches long by  $1\frac{1}{4}$ -2 broad cano-pubescent beneath lineolate above, panicles terminal 6-10 inches long pubescent, flowers fascicled, calyx and corol pubescent, calycine segments subulate, corol 8-9 lines long the tube pale purple the limb greenish yellow, anthers white ecalcarate, filaments at the base and ovary a little hairy, capsule 5 lines long tetragonal 12-seeded. *DC. Prod.* xi. 93.

Ceylon, shady places in the hot drier parts of the island.

## PLATE No. CCLXV.

**RUNGIA LONGIFOLIA.** (Nees and Arnt.) Stems slightly pubescent branched from the base, leaves unequal the lower oval or orbicular very small, the upper linear spatulate 3-4 inches long by 3 lines broad scolloped lineolate, spikes small axillary or terminal solitary or twin, bracts 3 lines long broad oblong long-ciliate mucronate and with a membranaceous margin, bracteoles narrower and smaller ciliate, calyx glabrous, corol 4-5 lines long a little hairy on the outside, upper lip bifid, anthers a little hairy. *DC. Prod.* xi. 471.

Ceylon, Ramboda and Adam's Peak.

PLATE No. CCLXVI.

**PTYSSIGLOTTIS RADICOSA.** (Anders.) Stems creeping slightly pubescent, leaves distant oval obtuse lineolate and furnished with a few setæ on the upper side glabrous or subglabrous beneath,  $1\frac{1}{2}$  inches long by about 1 inch broad, petiole 4-6 lines long. Spikes terminal on longish peduncles (4-7 lines), bracts subulate, calyx segments subulate, corol white 6 lines long the upper lip bipartite segments acute, lower lip tripartite segments rounded, capsule 3 lines long, seeds tuberculate. *And. in Thw. En. p.* 235. *Rhytiglossa radicosa*, *DC. Prod.* xi. 344. *Rostellaria sarmentosa*, *Zollinger Pl. Java.*; *DC.* 370.

Ceylon, hot drier parts of the island.

PLATE No. CCLXVII.

**JUSTICIA HOOKERIANA.** (Nees.) Stem suffruticose 4-6 angled, glabrous in age, leaves narrow lanceolate obtuse or acute 2-2 $\frac{1}{2}$  inches long by 5-6 lines broad glabrous decurrent on to a very short petiole, spikes axillary flexuose longer than the leaves, flowers distant, bracts and bracteoles linear or subspathulate, corol 4-5 lines long. *Adhatoda Hookeriana*, *Nees. in DC. Prod.* xi. 403. *Justicia*, *Anders. in Thw. En. Pl. Zey.* 233. *Leptostachya Zeylanica*, *Nees in partim.*

Ceylon, abundant on banks of streams in the central provinces.

PLATE No. CCLXVIII.

**MONOTHECIUM ARISTATUM.** (Wall.) Stems puberulous, leaves elliptic oblong furnished with a few hairs on the veins, 2-2 $\frac{1}{2}$  inches long by 1-1 $\frac{1}{4}$  broad, petioles generally unequal up to 1 inch long, spikes terminal, bracts and calycine segments subulate glanduloso-pubescent, corol slightly puberulous on the outside white the lower lip blotched with red. *Justicia aristata*, *Wall. in Cat.* 2481. *Anthocometes aristatus*, *Nees in DC.* xi. 312. *Monothecium*, *And. in Thw. En. Pl. Zey.* p. 234.

Nilgiris and Ceylon.

PLATE No. CCLXIX.

GUTTIFERÆ.

**GARCINIA PURPUREA.** (Roxb.) A small tree, diœcious, leaves (red when young) lanceolate elliptic 3-4 inches long by 1-1 $\frac{1}{4}$  broad, penniveined the primary veins irregular and not conspicuous; *male*, flowers peduncled 3-8 (generally 3) in the terminal axils 2-4 in the lateral ones, stamens very numerous on an entire short column, anthers oblong 2-celled dehiscing longitudinally, rudiment of ovary none; *female*, flowers sessile solitary or 2 and 3 together, sterile stamens in 4 phalanges in a ring round the ovary each phalanx with 2-7 staminodes in 1-2 rows, ovary cells and stigmas 5-8. Fruit globose not furrowed 1-1 $\frac{1}{2}$  inches in diameter purple or white, edible. *Roxb. Fl. Ind.* ii. 624.

A very common tree throughout North Canara where it is called Kokum; there are 2 varieties, one with white and the other with purple fruit the fruit has a very agreeable acid flavor and is much eaten, and a syrup is made from it. The seeds furnish the kokum, a concrete oil or soapy substance useful in healing chaps; the tree flowers in November and December and the fruit ripens in the hot weather.

PLATE No. CCLXX.

MELASTOMACEÆ.

**KENDRICKIA WALKERI.** (Hook. f.) An epiphytic scandent shrub, leaves 5-nerved oblong or ovato-oblong narrowed at both ends obtuse furfuraceous when young, subentire, or ciliato-dentate when young, 1 $\frac{1}{2}$ -3 inches long paler beneath, petioles 2-3 lines long, pedicels about 1 $\frac{1}{2}$  inches long and with the bracts and calyx sparingly ferrugineous, bracts oblong obtuse 2-3 lines long,

calyx red, petals fleshy ovato-rotundate about  $1\frac{1}{2}$  inches long rose colored. *Hook. and Benth. Gen. Pl. vol. i. 751.* *Medinilla?* *Walkeri, Wight Ill. i. 217.* *Pachycentria, Thw. En. p. 107.*

Ceylon, one of the most beautiful plants in the island, covering the trunks and branches of trees at 3000-5000 feet elevation.

PLATE No. CCLXXI.

STYRACEÆ.

**SYMPLOCOS OLIGANDRA.** (Bedd.) A small or middling sized tree much branched, gemmæ and young parts minutely puberulous, leaves coriaceous elliptic shortly pointed or rarely obtuse glabrous on both sides, shining above, pale beneath, quite entire or with a very inconspicuous tendency to crenation near the apex, about 2 inches long by 8 lines broad, petioles 2-3 lines long channelled on the upper side and puberulous, racemes puberulous very short scarcely longer than the petioles 3-6 flowered, calyx puberulous scarcely a line long segments unequal, corol glabrous about twice as long, stamens as long as corol 12 (rarely only 10-11) generally hexadelphous in pairs or irregularly pentadelphous, some in bundles of 2-3-4 the others solitary, ovary 3-celled, ovules 2, the upper one very small suberect the lower long and pendulous, fruit not seen. *Bedd. Fl. Sylvatica p. cl.*

PLATE No. CCLXXII.

MYRTACEÆ.

**EUGENIA SINGAMPATTIANA.** (Bedd.) A small dense tree, leaves opposite coriaceous oblongo-ovate to broad ovate subcordate at the base retuse or subacute at the apex deep green above, very pale beneath, perfectly glabrous, about 3 inches long by  $1\frac{1}{2}$ -2 inches broad, primary veins numerous and forming a continuous loop near the margins, flowers white in expansion about  $\frac{1}{2}$  an inch on very short terminal crowded racemes, calyx and bracts with a slight pubescence, petals 4 distinct, prominently veined and inconspicuously dotted.

I have only met this tree on the Singampatty hills (Tinnevely ghats) at 3000 feet elevation in moist forests.

PLATE No. CCLXXIII.

RANUNCULACEÆ.

**THALICTRUM DALZELLII.** (Hook.) Stem erect 1 foot high, leaves 3-foliate rarely 2-ternate slightly sheathing at the base, leaflets  $1\frac{1}{2}$ -2 $\frac{1}{4}$  inches in diameter reniform deeply cordate 7-9 lobed lobes crenate or toothed, stipules oblong free, panicle subsimple small, flowers white, fascicled at the ends of the branches, filaments clavate about 50, achenes about 38 not compressed sessile, ribbed, furnished with long straight beaks hooked at the top. *Hook. and Thom. Fl. Ind. 10.*

Bababooden hills and Canara ghats, also in the Bombay Presidency (Harrichander.)

PLATE No. CCLXXIV.

RUTACEÆ.

**PARAMIGNYA ARMATA.** (Thw.) A large scandent shrub, spines deflexed often recurved, leaves 1-foliate ovato-oblong to ovate with a sudden acumination, the apex obtuse or mucronulate glabrous or slightly hairy on the under side and the costa puberulous, punctate, 1-3 inches long by  $1-1\frac{1}{2}$  broad, petioles articulated 8-9 lines long, flowers solitary or several together in the axils, pedicels slender articulate 3-12 lines long, calyx small 4-5-triangulari-lobulate or dentato-lobate puberulous, petals 4 oblong punctate imbricate. Stamens 8-10, filaments hairy apiculate towards the apex dilated below, anthers oblong, ovary pilose and punctate 3-4-5 celled seated on a large gynophore, ovules solitary pendulous, style thick punctate, stigma dilated, fruit rotundate about  $\frac{1}{2}$  an inch in diameter yellowish green when ripe. *Anthromiscus armatus, Thw. En. Pl. Zey. 47.* *Paramignya, Oliver on Aurantiaceæ p. 43.*

Common on our Western ghats, Wynad, Coorg, &c., up to 3-4000 feet elevation, also in Ceylon.

PLATE No. CCLXXV.

CAPPARIDEÆ.

**CAPPARIS PARVIFLORA.** (Hook. f. et Thom.) A spreading much branched large shrub, branches unarmed, leaves glabrous subcoriaceous very variable from narrow lanceolate to broad oblong or ovate, attenuate or cordate at the base more or less



suddenly acuminate at the apex, 3-5 inches long by  $\frac{1}{2}$ -2 $\frac{1}{2}$  inches broad, veins prominently looped well within the margin, petioles about 2 lines long, flowers whitish about 5 lines in diameter in axillary or subterminal 3-6 flowered subsessile or shortly peduncled umbels, pedicels  $\frac{1}{4}$ - $\frac{1}{2}$  inch slender, calyx ciliate, petals oblong veined ciliate, stamens about 50, ovary oblong glabrous the gynophore  $\frac{1}{2}$  inch long, fruit pisiform scarcely  $\frac{1}{2}$  inch in diameter. *Flora of British India* p. 176.

Tinnevely and Travancore ghats, common in the Pooleary pass and about Courtallum, &c., the leaves are very variable, some of my specimens having them very narrow.

PLATE No. CCLXXVI.

**CAPPARIS PEDUNCULOSA.** (Wall.) A spreading branched shrub, branches pubescent at length glabrous, thorns short generally recurved, leaves glabrous suborbicular cordate at the base obtuse or retuse penniveined  $\frac{3}{4}$ -1 $\frac{1}{4}$  inches long by nearly as broad, shining above, petiole very short, flowers  $\frac{1}{2}$ - $\frac{3}{4}$  inch diameter in 2-6 flowered terminal or axillary and shortly ( $\frac{1}{6}$ - $\frac{1}{2}$  inch) peduncled umbels, pedicels 1-1 $\frac{1}{2}$  inches long slender, sepals equalling the petals ciliate at length reflexed, petals oblong ciliate, stamens about 26, ovary oblong glabrous, gynophore 1 inch long, fruit size of a cherry globose, several seeded. *Wall. Cat.* 6,993;—*Fl. Brit. Ind.* p. 176.

Tanjore, Concan, &c.

PLATE No. CCLXXVII.

RANUNCULACEÆ.

**CLEMATIS TRILOBA.** (Heyne.) A large climber, silky, leaves small simple ternate or pinnate entire or 1-3-toothed or-lobed, 1-2 inches, elliptic ovate or cordate 3-nerved, panicle axillary many flowered, lower bracts leafy, flowers 1 $\frac{1}{2}$ -2 inches in diameter white, sepals 4-6 spreading from the base, membranous oblong, silky outside, filaments about 30 narrow-linear glabrous or slightly hairy at the base, connective of anther not produced, achenes about 10, with long feathery tails. *Heyne in Roth. Nov. Sp.* 251;—*Fl. of Brit. Ind.* p. 3.

Concan ghats and Mawal district.

PLATE No. CCLXXVIII.

MALVACEÆ.

**DICELLOSTYLES AXILLARIS.** (Thw.) A middling sized tree, leaves entire ovato-lanceolate smooth 2 $\frac{1}{2}$ -4 $\frac{1}{2}$  inches long by 1 $\frac{1}{2}$ -2 inches broad paler beneath, petioles 3-4 lines long, flowers axillary solitary, bracteoles 4 lanceolate subconnate at the base 1-1 $\frac{1}{2}$  inches long by 3-6 lines broad, calyx cupuliform 5-toothed  $\frac{1}{2}$  inch long, petals 5 oblongo-spathulate ciliate and pubescent, staminal column short, ovary 2-celled cells 2-ovuled, style branches 2, stigmas large globose, fruit hispid. *Kydia axillaris*, *Thw. En. Pl. Zey.* p. 30. *Dicellostyles*, *Benth. Gen. Pl.* i. p. 207.

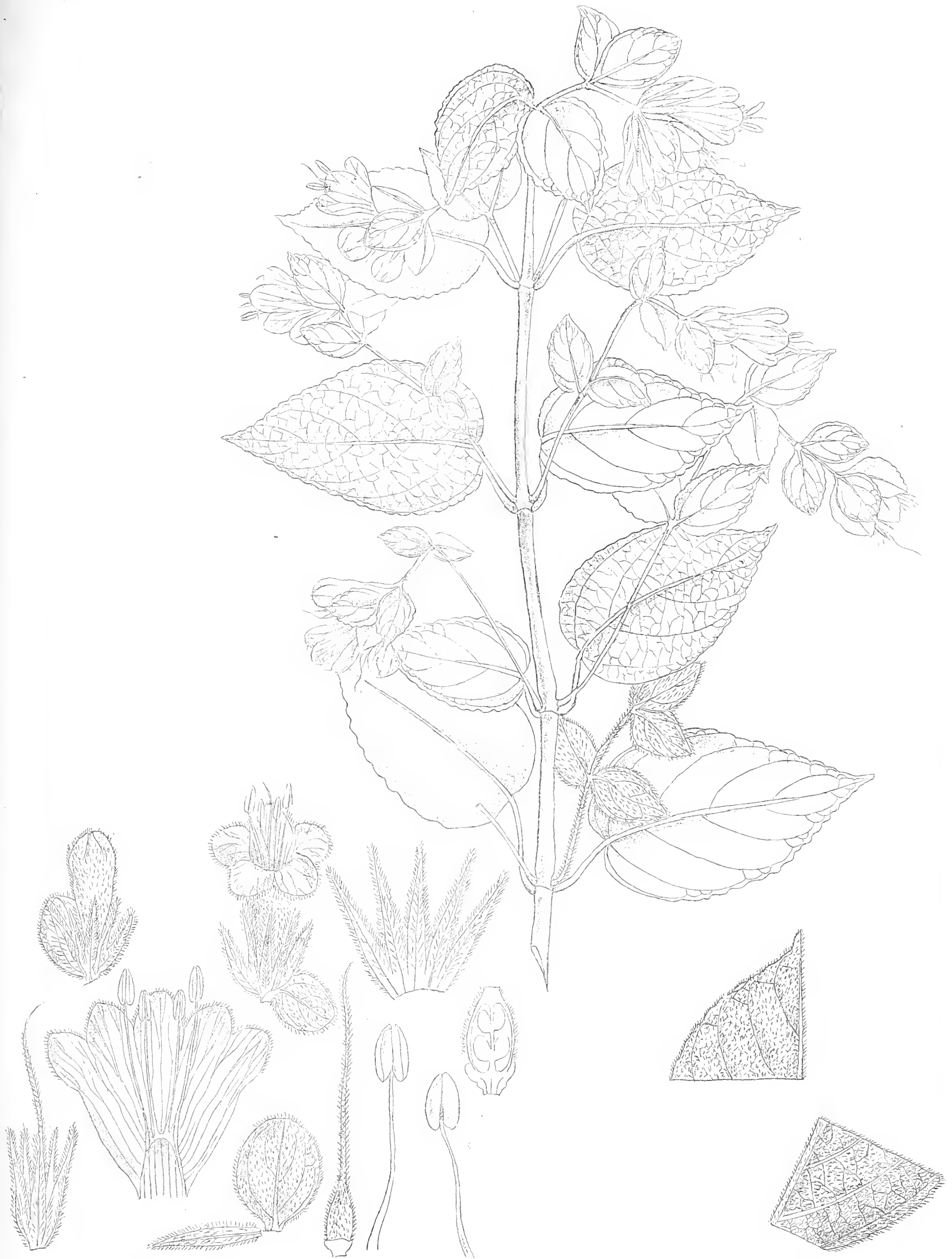
Ceylon, near Badulla, elevation 2000 feet.

PLATE No. CCLXXIX.

**JULOSTYLIS ANGUSTIFOLIA.** (Thw.) A middling sized tree sparingly branched, leaves narrow oblongo-lanceolate entire, gradually acuminate at the apex stellately hirsute, paler beneath 5-8 inches long by 1 $\frac{1}{2}$ -3 inches broad, petioles 3-5 lines long, panicles large terminal pendulous stellately pubescent, flowers  $\frac{1}{2}$  inch broad, corol cupuliform, pale colored with the lower half reddish inside, style densely hairy. *Thw. En. Zey.* p. 30. *Kydia angustifolia*, *Arnt. Pug. Pl. Ind. Or.* 4.

Ceylon, south of the island, not uncommon.

PLATE No. CCLXXX.





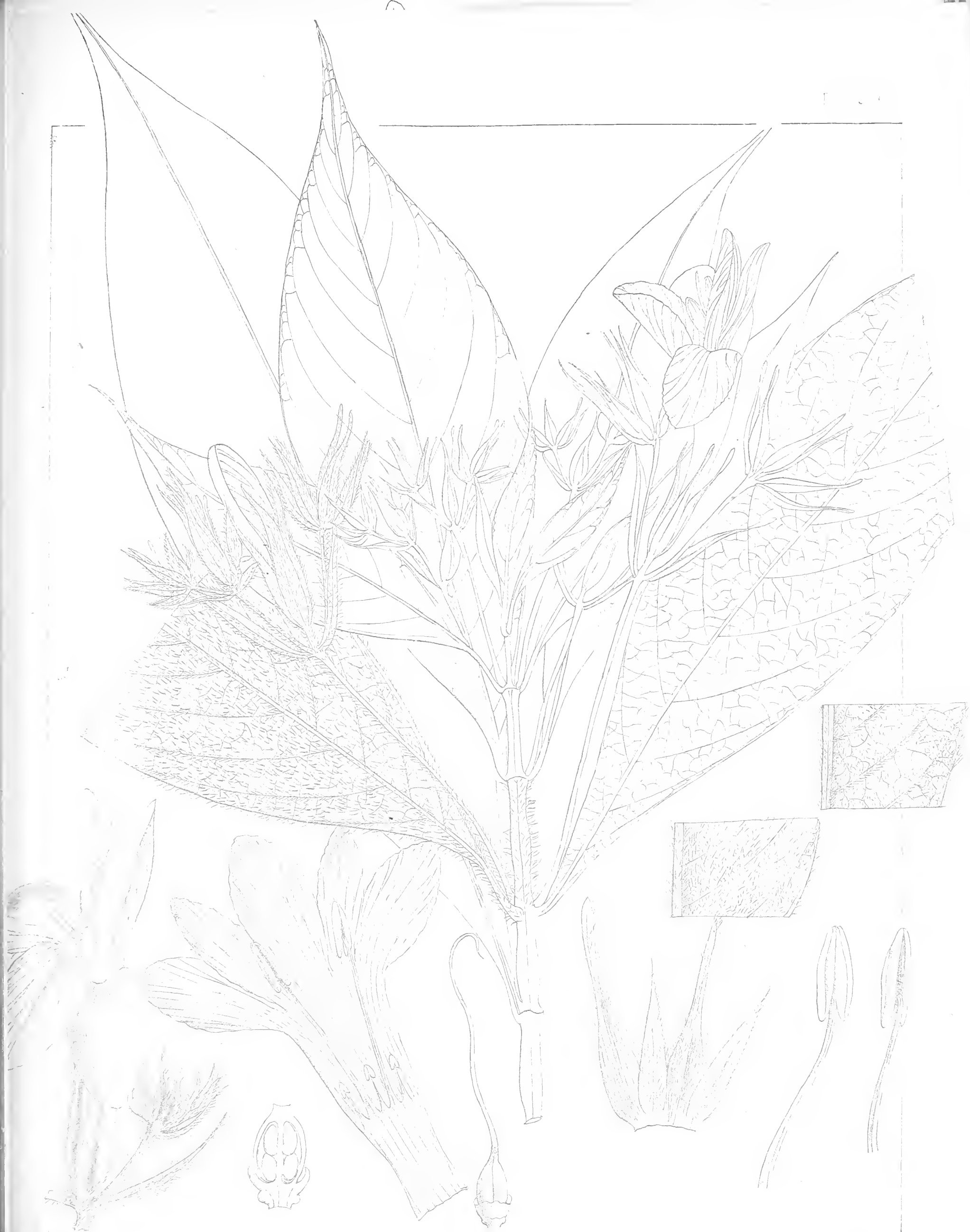


Govindoo del.

*Hibiscus herbieri* Des

Barren 20. 11. Madras





*Parleria vestita* A. N. S.





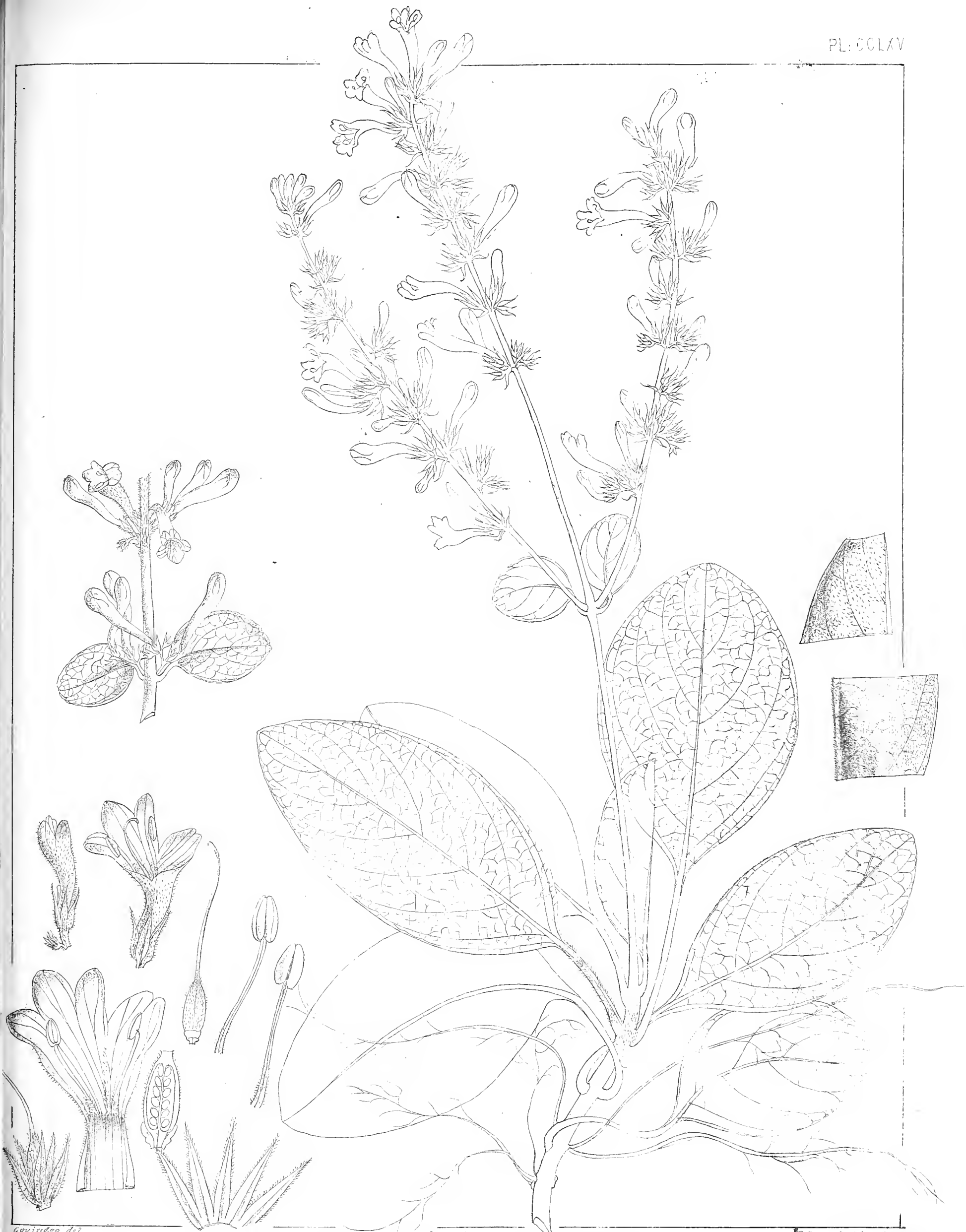
Goumidos del

*Bauhinia nutans* J. Vaca

Barren & Co. Lith. Madra







G. V. S.

G. V. S.

*Gymnostachyum Ceylanicum* (Hb. & V. S.)





*Rungia longifolia* Nees & Arn.





*Physalis peruviana* Anders.





Griseb. del.

Barron & Co. Lith. Philad.

*Justicia hookeriana* Nees







*Monothecium aristatum* (Wall.)





*Garcinia purpurea*, Rimb.





London: det.

*Kendrickia Walkeri* Hook.

Barren 8. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.











Drawn by del

*Eugenia Singampattiana* Bidd

Printed by W. & A. G. S. Ltd. London



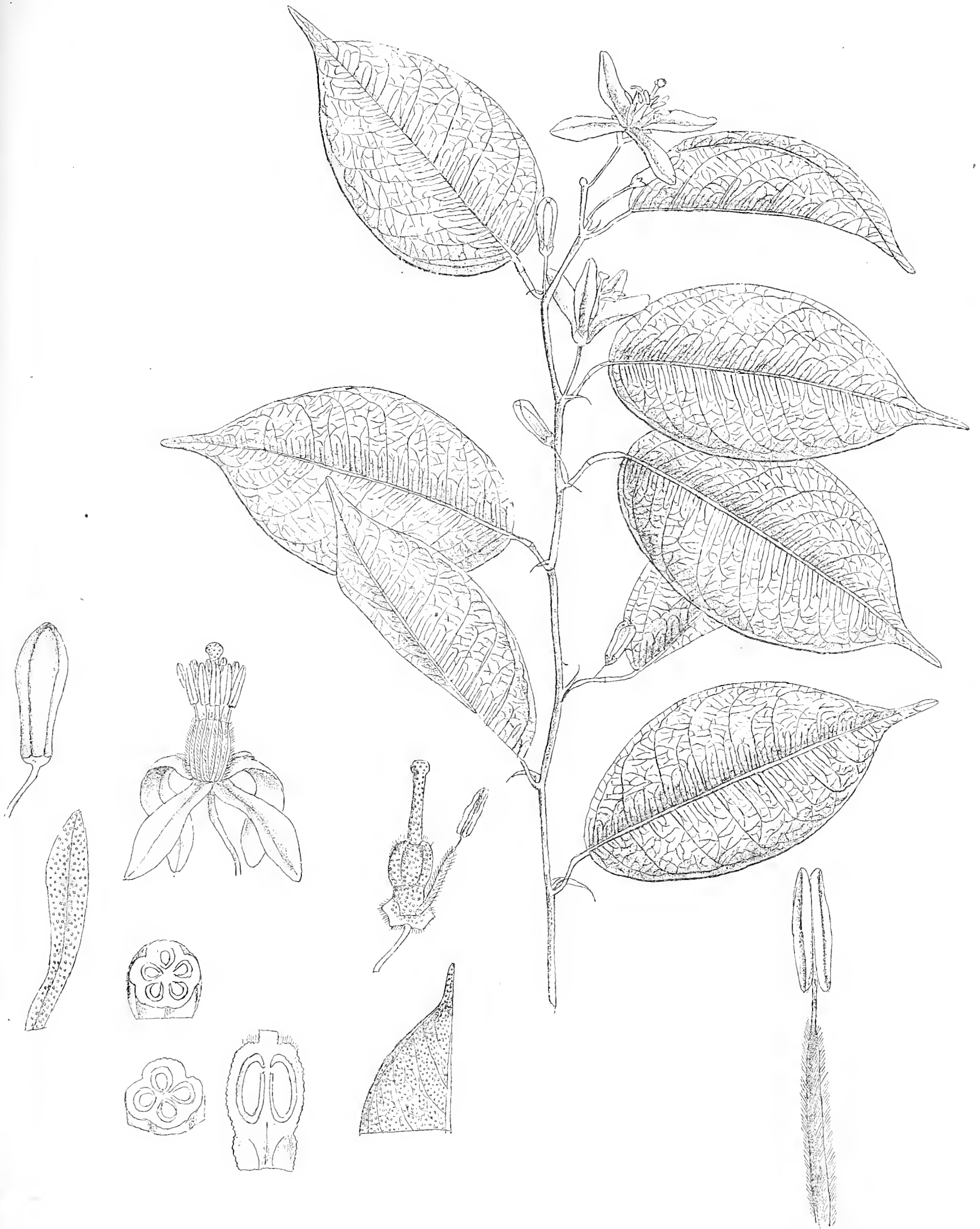


Windsor del.

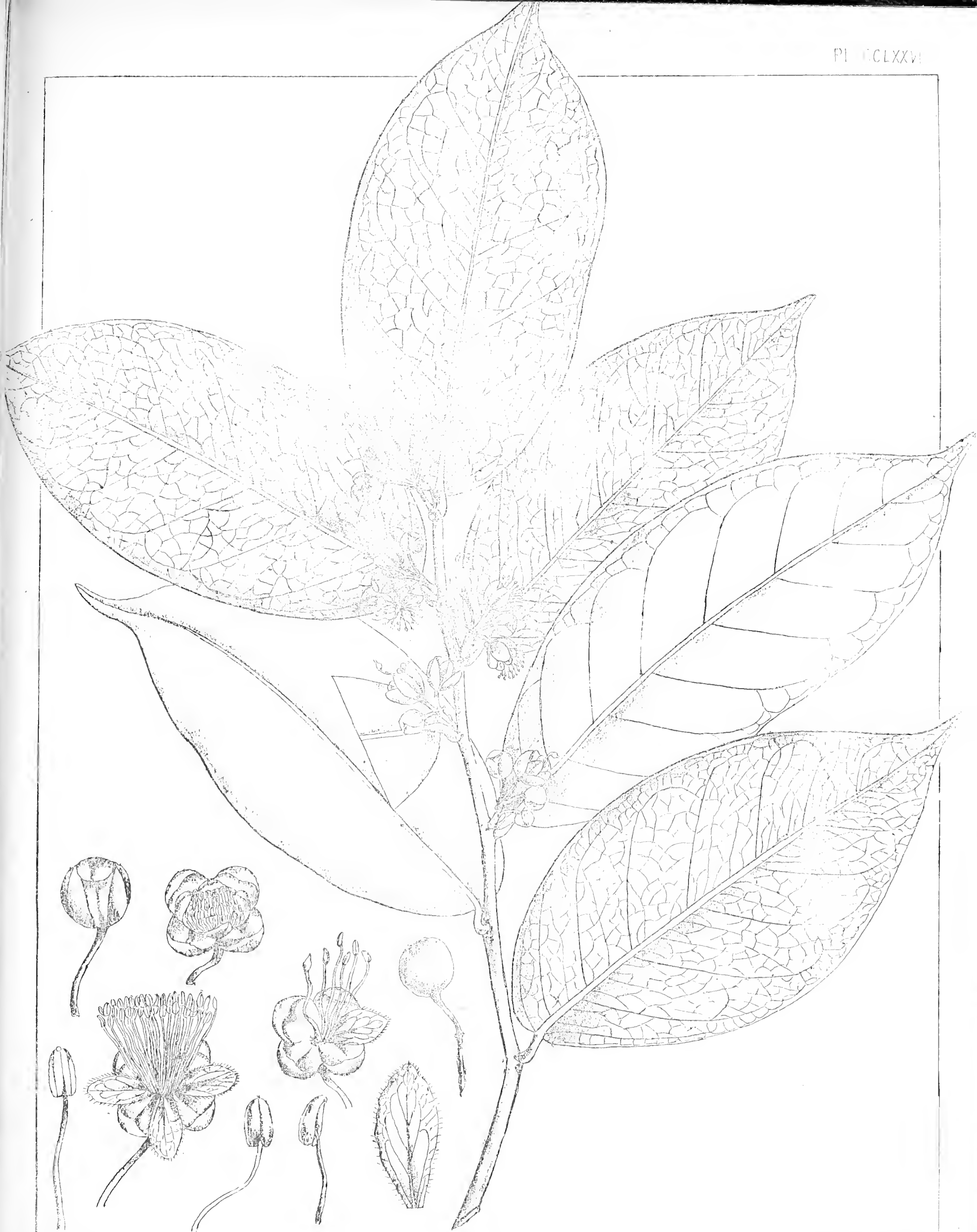
Burton & Co Lithog Madras

*Thalictrum Dabellii* Hook.













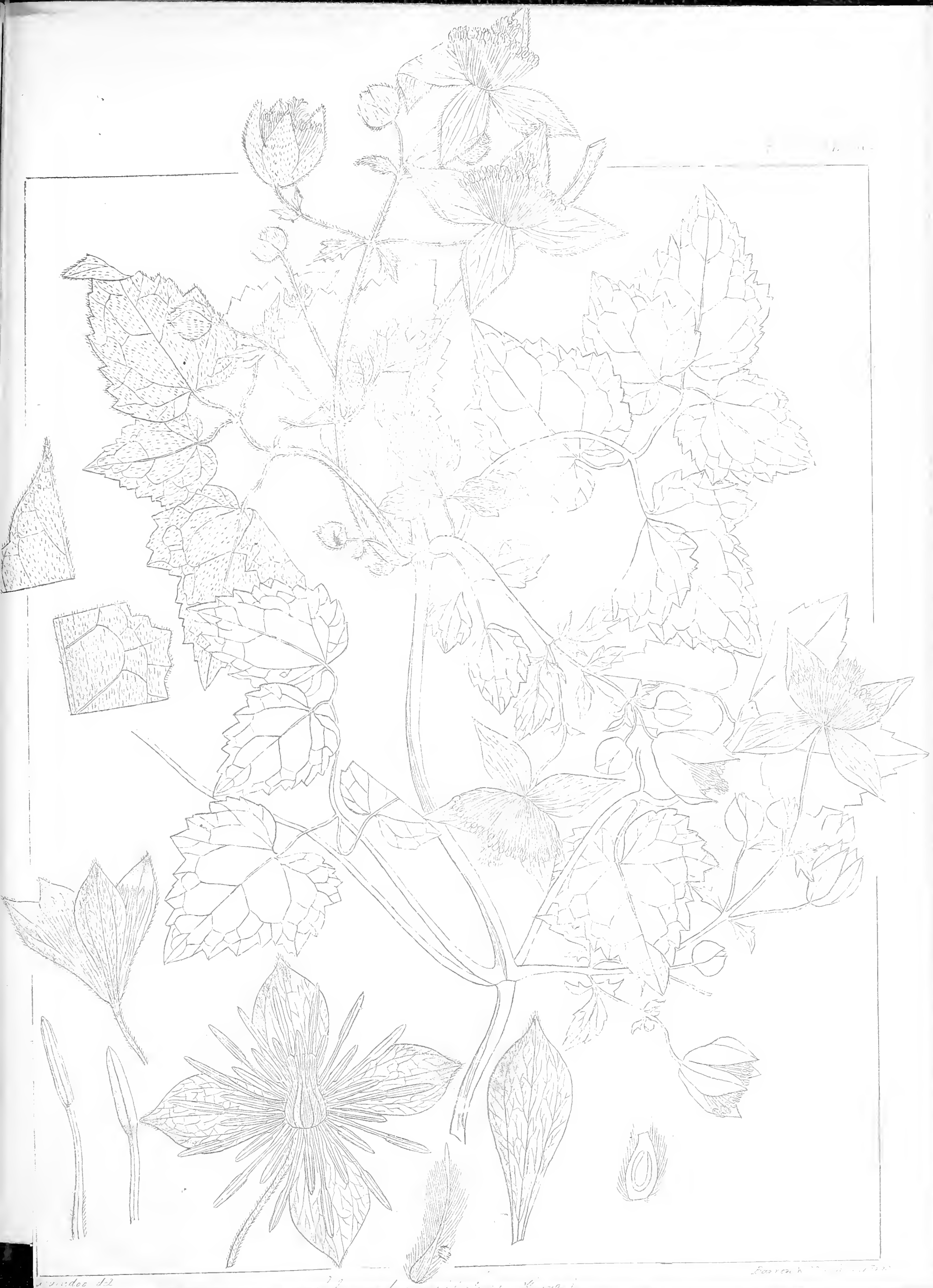


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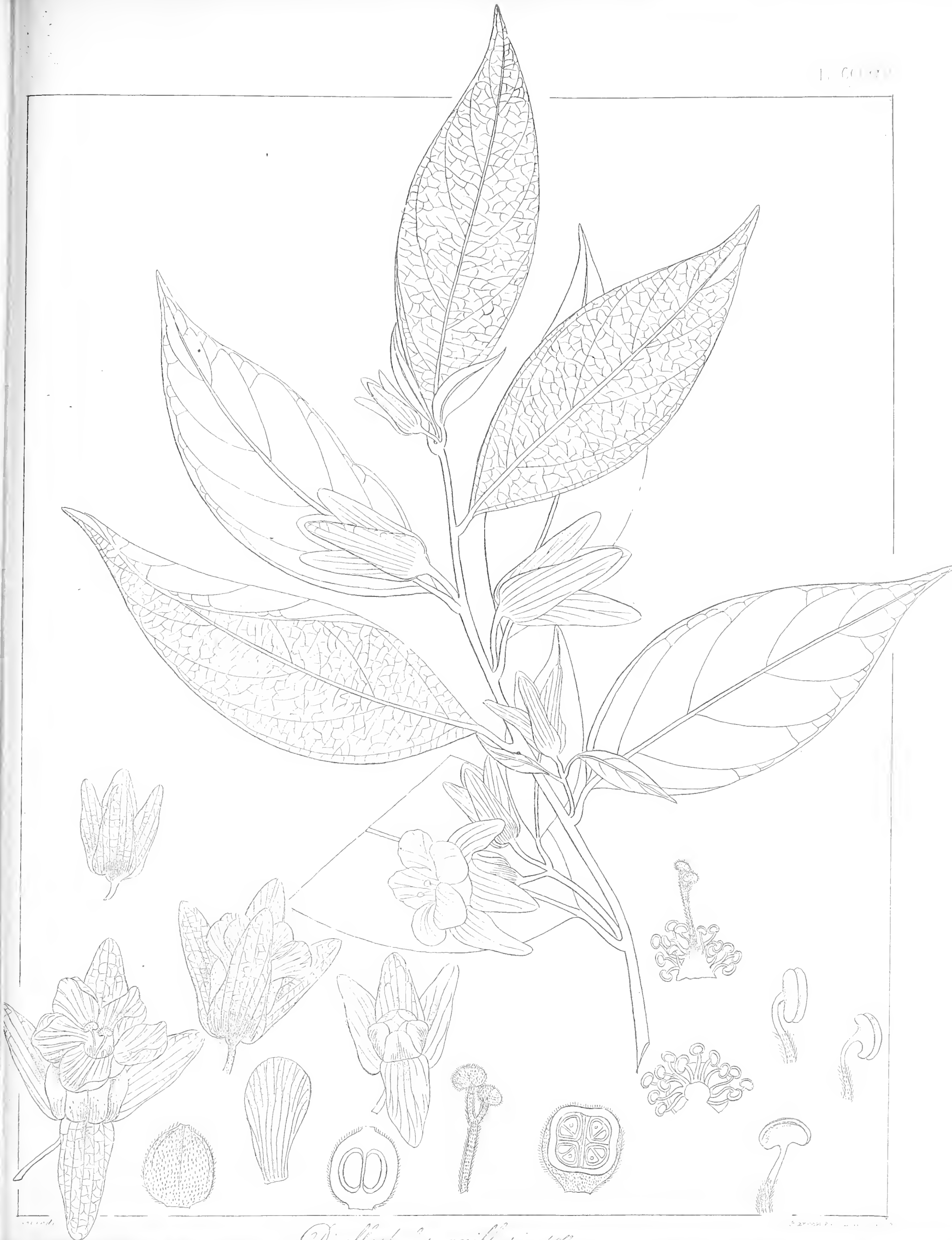
*Capparis pedunculata* Hall.

Barnes & L. H. Bailey









*Dicelostyles axillaris* Thunb.









## CAPPARIDÆ.

**CAPPARIS LONGISPINA.** (H. f. et Thom.) A shrub 4-6 feet, stems petioles leaves beneath costa of the leaf above base of the thorns rufo-pubescent, leaves coriaceous orbicular-cordate mucronate  $\frac{1}{4}$ - $\frac{3}{4}$  inches each way. Stipules or thorns as long or nearly as long as the leaf straight or slightly curved 2 to each leaf, pedicels slender glabrous 3-4 terminal on the branchlets and often 1 in the axil of the last leaf twice or nearly 3 times as long as the leaves, flowers glabrous, ovary oblong pointed glabrous, gynophore about  $\frac{1}{2}$  an inch.

Canara and Bombay ghats.

## PLATE No. CCLXXXI.

## ACANTHACEÆ.

**RUELLIA PROSTRATA.** (Poir.) Stems prostrate pubescent, leaves ovate obtuse or acute subentire or scoloped pubescent,  $\frac{3}{4}$ -1 $\frac{1}{4}$  inches long by  $\frac{1}{2}$ - $\frac{3}{4}$  inch broad, penniveined, petioles 2-6 lines long, flowers white or bluish 1-1 $\frac{1}{4}$  inches long axillary solitary on short peduncles, bracts oval petiolate longer than the calyx pubescent, calyx segments subulate pubescent 2-3 lines long, corol infundibuliform incurved puberulous outside, lobes obtuse regular, capsule glabrous or subglabrous 3 times as long as the calyx about 10-seeded. *Poir. Enc. Meth.* 6. 349. *Dipteracanthus prostratus*, DC. xi. 124, and *D. dejectus*, p. 125.

Common in the Cuddapah, Coimbatore and Tanjore Districts, also in Bengal and Ceylon.

## PLATE No. CCLXXXII.

## MYRTACEÆ.

**EUGENIA TERPNOPHYLLA.** (Thw.) A middling sized tree, branches terete, leaves submembranaceous lanceolate or oblongo-lanceolate with a long acumination and more or less narrowed at the base, the younger ones ferrugineo-pilose, 2 $\frac{1}{2}$ -5 inches long by  $\frac{1}{2}$ -2 inches broad, primary veins 5-8 on each side looped near the margin, petioles  $\frac{1}{4}$ - $\frac{1}{2}$  inch long, peduncles axillary and terminal short few flowered rufo-pilose as is all the inflorescence, pedicels about as long as the petioles, petals distinct white twice as long as the sepals, fruit spherical puberulous nearly as large as a cherry generally 1-seeded. *Thw. En. Pl. Zey.* p. 114 and 417.

Ceylon, Ambagamwa and Ratnapoora districts and Reigam Corle up to no great elevation.

## PLATE No. CCLXXXIII.

**CAREYA HERBACEA.** (Roxb.) Stems annual only a few inches high from a permanent ligneous root, leaves short petioled obovate with a short acute point, serrulate, 6-7 inches long by 3-4 inches broad, racemes short terminal, peduncles 1-2 inches long, calyx 9 lines long, petals 1 $\frac{1}{4}$  inches long, exterior filaments sterile and exceeding the fertile ones, ovary 1-celled with 4 parietal receptacles, fruit oblong 2 $\frac{1}{4}$  inches long by 1 $\frac{3}{4}$  inches diameter. *Roxb. Fl. Ind.* ii. 638.

Jubbulpore, Sumbulpore, &c., called Rui koombee; a very beautiful plant which should be introduced into our gardens.

## PLATE No. CCLXXXIV.

## SAPINDACEÆ.

**EUPHORIA GARDNERI.** (Thw.) A middling sized tree, leaves abruptly pinnate, subglabrous, leaflets 2-3 pair lanceolate coarsely and obtusely toothed, shortly petiolate glaucous beneath, about 3 inches long by 1 broad, racemes pubescent but the pubescence not stellate, sepals and petals acute and the latter much longer than the former otherwise as in *E. Longana*.—*Nephelium Gardneri*, *Thw. En. Pl. Zey.* p. 58.

Ceylon, Putlam.

## PLATE No. CCLXXXV.

**SCHMIDELIA ALLOPHYLLA.** (DC.) A small tree, leaves glabrous lanceolate, ovato-lanceolate or oblong acuminate entire or coarsely toothed near the apex, 5-10 inches long by 1 $\frac{1}{2}$ -3 $\frac{1}{2}$  inches broad, veins prominent and looped well within the margins,

petioles  $\frac{1}{2}$ -1 inch long, flowers small villous in axillary racemes 6-12 lines long, petals with a very villous scale on their inner face and with a long claw, disk of 4 large glandular lobes, berry round size of a pea red. *DC. Prod. i. 611.*

Ceylon, Ambagamwa and Hinidoon Districts up to 3000 feet elevation.

PLATE No. CCLXXXVI.

**SCHMIDELIA ACUMINATA.** (Thw.) A small tree, branches terete glabrous, leaves glabrous ovate obtusely rostrato-acuminate,  $2\frac{1}{2}$ -4 $\frac{1}{2}$  inches long by 1-2 inches broad, petioles 4-7 lines long, racemes elongate subglabrous few flowered, the petals with a very densely villous scale. *Thw. En. Pl. Zey. p. 55.*

Ceylon, Galagama on banks of streams 2000-3000 feet elevation; the analysis in the plate gives only male flowers.

PLATE No. CCLXXXVII.

**SCHMIDELIA VARIANS.** (Thw.) A small tree, branches terete glabrous, leaves glabrous lanceolate acuminate entire 4-6 inches long by  $1\frac{1}{2}$ -1 $\frac{3}{4}$  inches broad, petioles  $\frac{1}{2}$ -1 inch long, racemes puberulous 4-5 inches long, bracts very minute and very shortly pilose. *Thw. En. Pl. Zey. p. 408.*

Ceylon, central provinces, 2000-5000 feet elevation.

PLATE No. CCLXXXVIII.

**NEPHELIUM BIFOLIATUM.** (Thw.) A middling sized tree, 20-30 feet high, much branched, leaflets 1 pair, common petiole about 1 inch long glabrous entire lanceolate obtusely pointed shining above, reticulated, opaque and fuscous beneath, 3-5 inches long by  $\frac{3}{4}$ -1 $\frac{1}{2}$  inches broad, petiolules 2-3 lines long, panicles pilose terminal and axillary as long or longer than the leaves, flowers 5-merous, calycine segments rounded glabrous ciliate, petals slightly longer oblong glabrous ciliate, with a sudden short claw and furnished with a small round long ciliate scale at the base, disk fleshy crenulate, stamens generally 7 the filaments hairy at the base longer in the male flower, ovary glabrous 2-lobed. *Thw. En. Pl. Zey. p. 57.*

Ceylon, Lower Badulla road from Kandy at no great elevation, in flower in April. I have what appears to be the same only in young bud from the Kolay Mallays in the Trichinopoly district of this Presidency.

PLATE No. CCLXXXIX.

DISCOREACEÆ.

**TRICHOPODIUM ZEYLANICUM?** (Thw.) Leaves bluntly hastate or triangulari-deltoid prominently 7-nerved, 4-5 inches long by 2-3 inches broad on petioles 4-7 inches long, flowers brownish red 4-5 lines long, fruit 12-14 lines long. *Thw. En. Pl. Zey. p. 291?*

Travancore hills (Singampatty) up to 3500 feet elevation. I have distributed specimens under the name of *T. Travancoricum*, and it appears to differ from Dr. Thwaites' description of the Ceylon plant in its larger flowers and in the greater number of nerves in the leaf. I have not seen Ceylon specimens, but Dr. Thwaites does not seem to think this distinct as a species.

PLATE No. CCXC.

CONVOLVULACEÆ.

**NEUROPELTIS RACEMOSA.** (Wall.) A large woody climber, stems glabrous in age, leaves ovate to lanceolate with a longish acumination entire glabrous in age but when young densely adpresso-pubescent above and sparingly hairy beneath, 3-5 inches long by about 2 inches broad, petioles  $\frac{1}{2}$ -1 inch long, racemes straight axillary or from the old axils solitary or several together densely rufo-pubescent 2-3 $\frac{1}{2}$  inches long, flowers 3-4 lines long on peduncles 2 lines long which are furnished towards their apex with a large ovate acute cucullate bract, calyx about  $1\frac{1}{4}$  lines long rufo-pubescent as are the bracts and petals, corol nearly 3 times as long as the calyx deeply 5-cleft, lobes entire, ovary hirsute, fruit not seen. *Wall. in Roxb. Fl. Ind. ed. Wall. ii. 44.*

Near the foot of the Tambacherry ghat in the plains of Malabar, about Poodoopara. I have not seen the fruit, but as far as they go my specimens quite answer to Wallich's description of the Penang plant though it has not previously been found in India.

PLATE No. CCXCI.

LEGUMINOSÆ.

**ALYSICARPUS RACEMOSUS.** (Benth.) Stems pilose with longish golden hairs, the upper leaves trifoliate the lower simple, leaflets oval to orbicular glabrous above at least in age silky beneath, the terminal ones 14-15 lines long by 9 lines broad, the lateral ones small, petioles 3-5 lines long, stipules scariose setaceous 4-5 lines long, racemes lax aureo-pilose, pedicels 8-9 lines long slender, calyx segments setaceous nervoso-striate, legume exserted 3-6-articulated the lobes reticulated. *Benth. in Linn. xxiv. 642.*

Bolampatty hills (Coimbatore) 2500 feet elevation, also on the Nilgiris.

PLATE No. CCXCII.

**GEISSASPIS CRISTATA.** (WA.) Herbaceous procumbent, leaves equally pinnated, pinnae 2 pair, cuneate obovate retuse slightly crenated, 5-6 lines long, racemes axillary and terminal on peduncles  $1\frac{1}{2}$  inches long, bracts large orbicular many-veined long ciliate on the margins, flowers solitary in each bract small yellowish, legume 1-2-jointed tumid in the middle. *WA. Prod. p. 218.*

Coimbatore, Malabar and Tinnevely.

PLATE No. CCXCIII.

**STYLOSANTHES MUCRONATA.** (Willd.) Suffruticose branched spreading, branches shortly hirsute, stipules scariose bristly on the back adnate, leaves trifoliate about 1 inch long, leaflets rigid oblongo-ovate stiffly mucronate slightly ciliate with short stiff bristles, in age glabrous, under side when young a little hairy, 6-8 lines long by 2-3 lines broad, veins prominent, flowers axillary sessile and solitary or forming small few-flowered terminal imbricated spikes, bracts ciliate rather short, calyx tube villous about 2 lines deep the plumose rudimentary floret a little longer. *Willd. Sp. 3 p. 1166 ;—WA. Prod. p. 218.*

A rather common undershrub in different parts of the Presidency, also in Africa.

PLATE No. CCXCIV.

**MILLETTIA SPLENDENS.** (WA.) A lofty climber, young parts petioles and racemes clothed with golden or fulvous tomentum, leaves unequally pinnate, leaflets 2-3 pair with a terminal one oblongo-ovate to oblongo-lanceolate suddenly acuminate, rather undulate at the margins, glabrous above, silky beneath, 5-7 inches long by 2-3 $\frac{1}{2}$  broad, panicles axillary  $1\frac{1}{2}$  feet long many flowered, the lateral branches short few flowered, pedicels 2-3 lines long, calyx short 4 cleft the upper segment the broadest entire or bifid, vexillum silky outside, the wings hairy, ovary 5-ovuled, legume very velvety 2-4 inches long, 1-2 seeded. *WA. Prod. p. 263.*

Eastern slopes of the Nilgiris; the legumes in the drawing are very young.

PLATE No. CCXCV.

**VIGNA WIGHTII.** (Benth.) Stems herbaceous climbing a little hairy or glabrous. Stipules very small lanceolate peltate, petioles 1-2 $\frac{1}{2}$  inches long, leaflets 3 membranaceous clothed with adpressed grey hairs on both sides the terminal one ovate-lanceolate acute 3-3 $\frac{1}{2}$  inches long, petioles 6-7 lines long, lateral ones more ovate and unequal sided a little smaller and on very short petiolules, peduncles much thickened 2-7 inches long, furnished at the apex with 3-4 flowers, flowers large ( $1\frac{1}{2}$  inch long) lilac very fragrant, calyx 5-6 lines long the teeth linear subulate nearly equalling the tube, the 2 upper ones slightly connate at the base the 3 lower equal all a little hirsute, corol 3-4 lines as long as the calyx, the inflexed auricles of the standard very prominent the keel curved at the point, pod linear straight terete 5 inches long blackish when ripe clothed with a very short pubescence, many seeded.

Wynad and elsewhere on our Western ghats up to 4000 feet, often called the Wynad sweet pea, its very fragrant beautiful flowers would render it a great favorite in gardens.

PLATE No. CCXCVI.

**RHYNCHOSIA CODOORENSIS.** (Bedd.) Stems herbaceous climbing pubescent, stipules small setaceous deciduous, petioles  $1\frac{1}{4}$ - $1\frac{1}{2}$  inches long whitish-pubescent, leaflets 3 the central one broad ovate to rhomboid-ovate acute up to 3 inches long by 2 broad, the petiolule 6 lines long the lateral ones smaller and unequal-sided membranaceous furnished on both sides with adpressed short pubescence, reticulated and paler on the underside, racemes lax few flowered-nearly as long as the leaves, flowers in pairs, bracts ovate to suborbicular broader than long acute or obtuse caducous, calyx pubescent  $\frac{1}{2}$ - $\frac{3}{4}$  inch long the segments prominently veined ovato-lanceolate obtuse the 2 upper connate towards the base, the lowest a little longer than the others, corol yellow not equalling the calyx, pod 3-4 lines broad 2-seeded not equalling the calyx slightly puberulous.

Codoor hills, Cuddapah District, rare.

PLATE No. CCXCVII.

#### MELASTOMACEÆ.

**SONERILA GARDNERI.** (Thw.) Stems terete, generally simple erect rather woody glanduloso-hirsute, reddish-black, 1- $1\frac{1}{2}$  feet high, leaves ovate or rotundate acute subcordate serrulate  $\frac{1}{2}$ - $1\frac{1}{4}$  inches long 4-8 lines broad hirsute on both sides paler beneath, petioles 1-3 lines long glanduloso-hirsute, pedicels hirsute shorter than the calyx each furnished with a foliaceous bract, flowers 9-12 lines long, the calyx glandulose-hirsute, petals reddish lanceolate acute, the centre nerve on the outside with a few glandular hairs, anthers cordato-lanceolate subacute capsule ovoid gibbous obscurely 6 costate muricato-hirsute. *Thw. En. Pl. Zey. p. 107.*

Ceylon, below Horton Plains towards Galagama on wet rocks, elevation 5000 feet.

PLATE No. CCXCVIII.

**SONERILA LANCEOLATA.** (Thw.) Suberect sparingly branched very glabrous, leaves 3-nerved linear-lanceolate serrulate above the middle, cordate at the base very shortly petioled,  $1\frac{1}{2}$ -3 inches long by 3-8 lines broad, racemes simple or branched, flowers 8-10 lines long, petals red rotundate apiculate, anthers subulate, capsule rather long and with the thickened pedicel deeply 6-sulcate. *Thw. l. c. p. 107.*

Ceylon, Carawette Kanda near Ratnapoora, elevation 1000 feet.

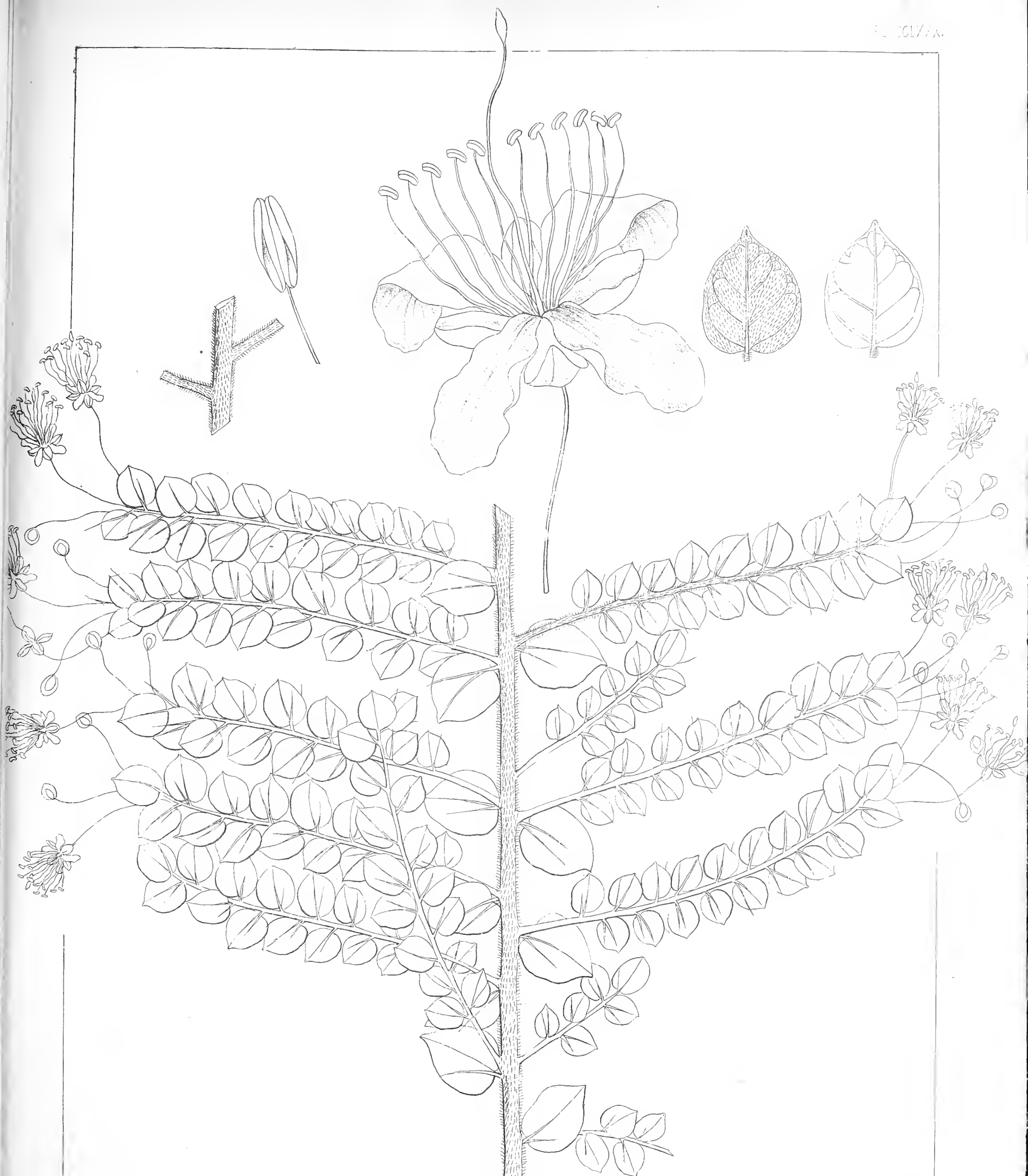
PLATE No. CCXCIX.

**SONERILA ARNOTTIANA.** (Thw.) 1-2 feet suberect subligneous, branched, branches more or less glanduloso-pilose, leaves 3-5-nerved lanceolate or ovato-lanceolate ciliato-denticulate a little oblique and unequal, above glabrous beneath sparingly glanduloso-hirsute on the nerves,  $\frac{3}{4}$ -3 inches long by 4-10 lines broad, paler beneath acute at both ends or the base rather rounded, petioles 8-12 lines long more or less glanduloso-pilose, racemes simple or forked glanduloso-pilose, petals ovate acuminate purple  $3\frac{1}{2}$  lines long, anthers cordato-oblong shortly acuminate, capsule hypocrateriform 6-ribbed muricato-setose about equalling the pedicel. *Thw. l. c. p. 108.*

Ceylon, central provinces 4000-7000 feet. Anamallay mountains 5000 feet elevation.

PLATE No. CCC.

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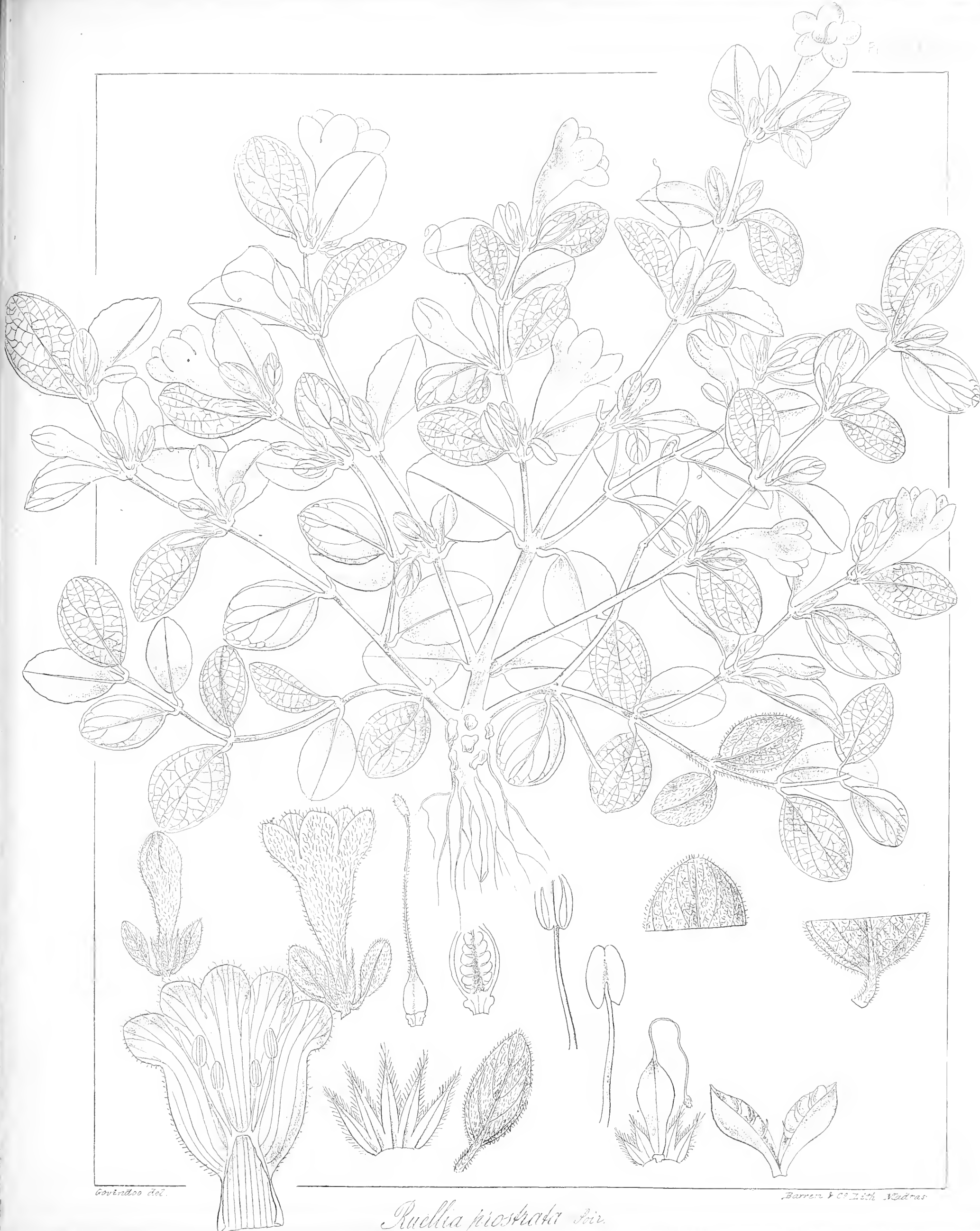
Gouvier del

*Cupparis longispina*, R. & A. Thore

Barren 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100







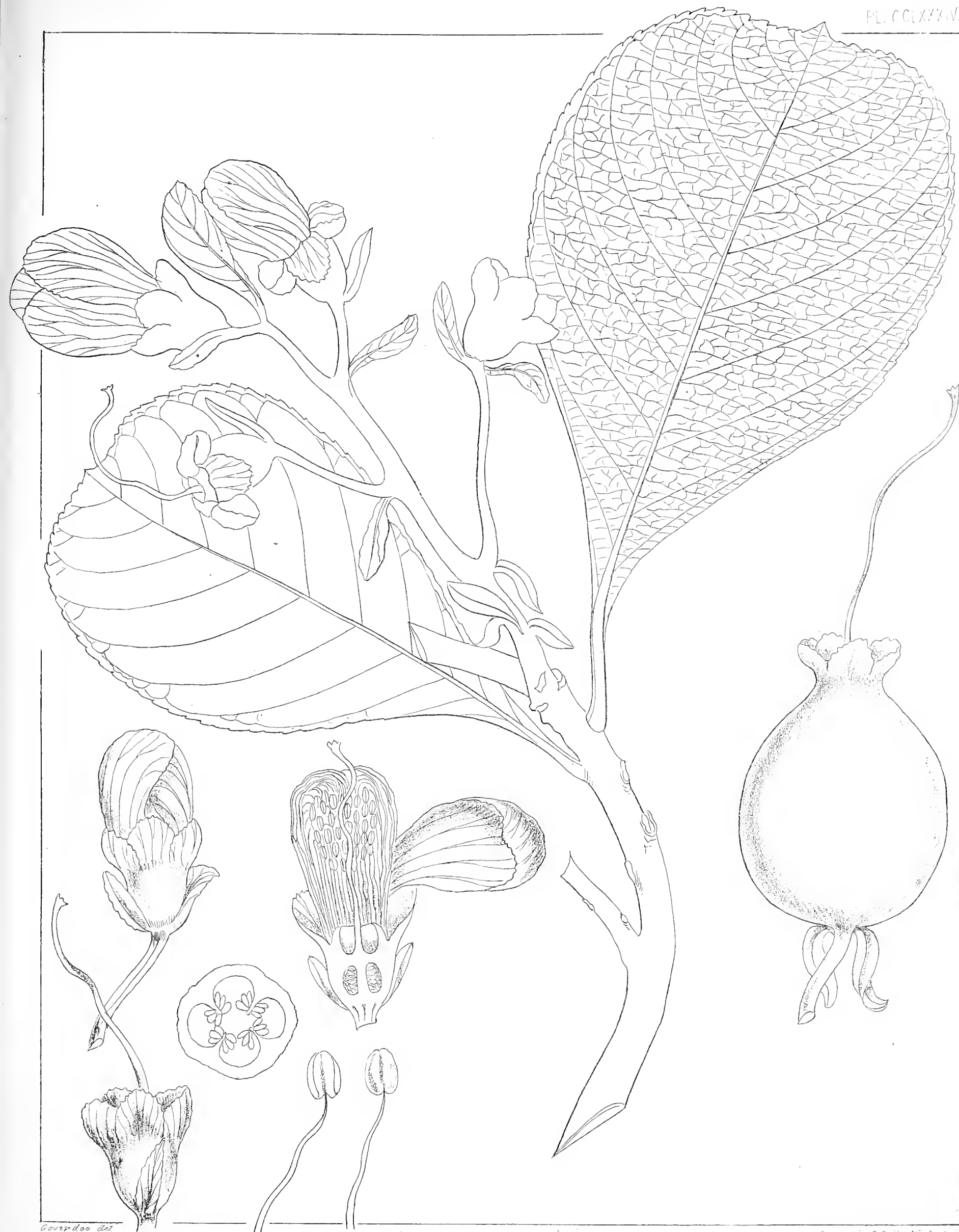
*Ruellia prostrata* L.











Gouindoo del

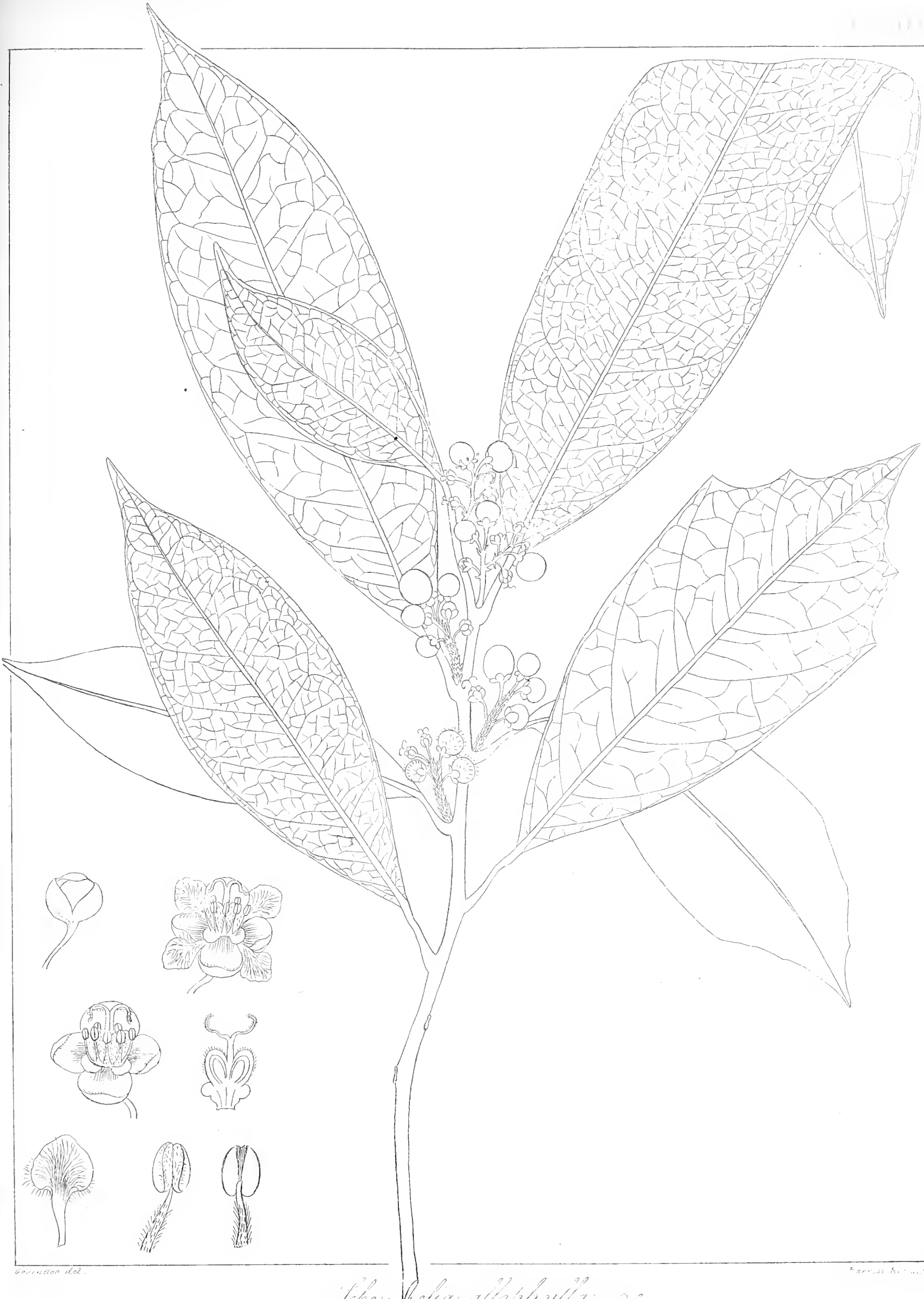
*Careya herbacea* (Roxb.)

Baron de J. de Meuse









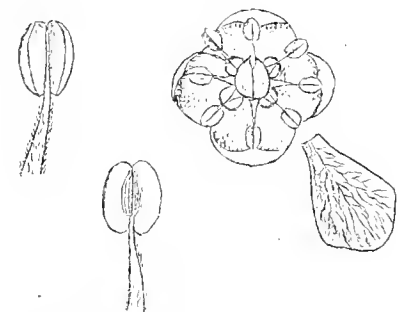
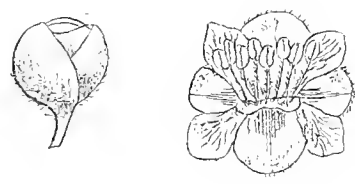
convención del.

*Schmulechia allophylla* 26

Exemplar de la especie







COVINDO DEL.

BARRON & CO. LITHO. ATLAS

*Schmidelia acuminata*, Moq.



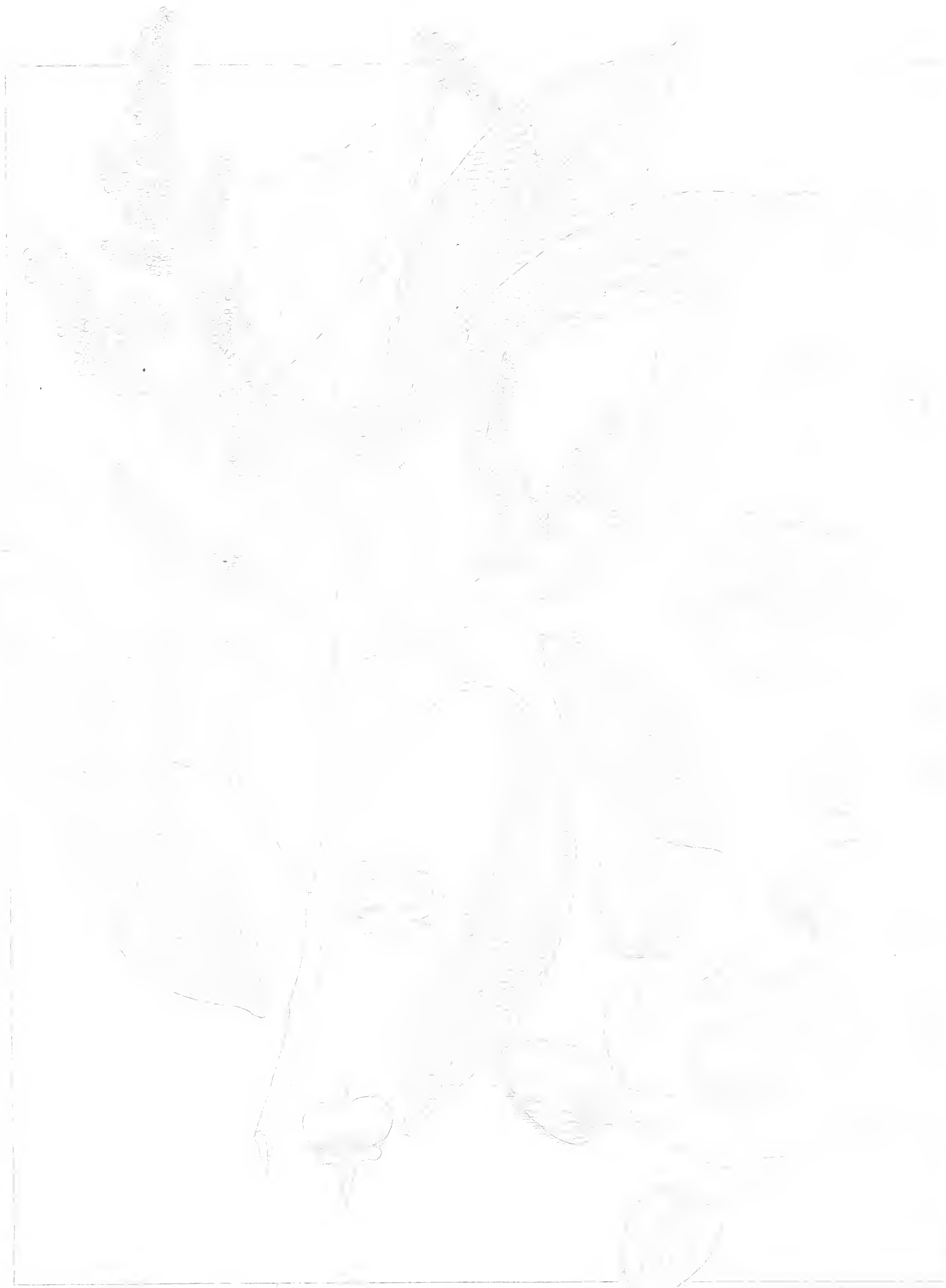


G. Lindero del.

*Schmidelia varians* (Thunb.)

Barroet, Co. Ilha de Madras





*Siphonura vifolium* L.





Grindoo del

*Trichopodium peruvianum* Phil.

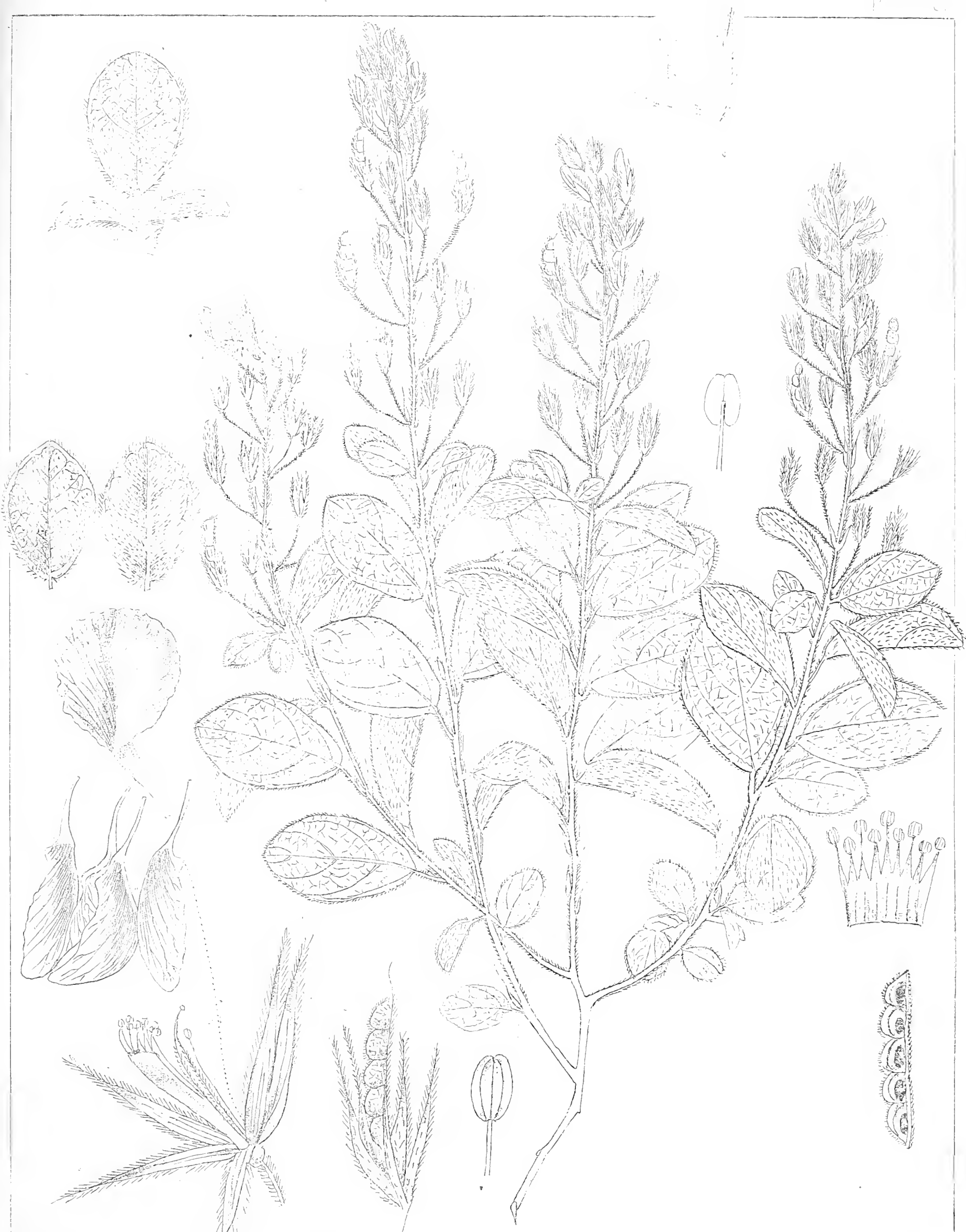
Barren & Co Lith. Madras











revando del.

*Hippocarpus racemosus* Benth

Barren n.º 10. Litho. Madrid





Govindoo del.

Barren & Co. Lith. Calcutta

*Geissaspis cristata*, H.







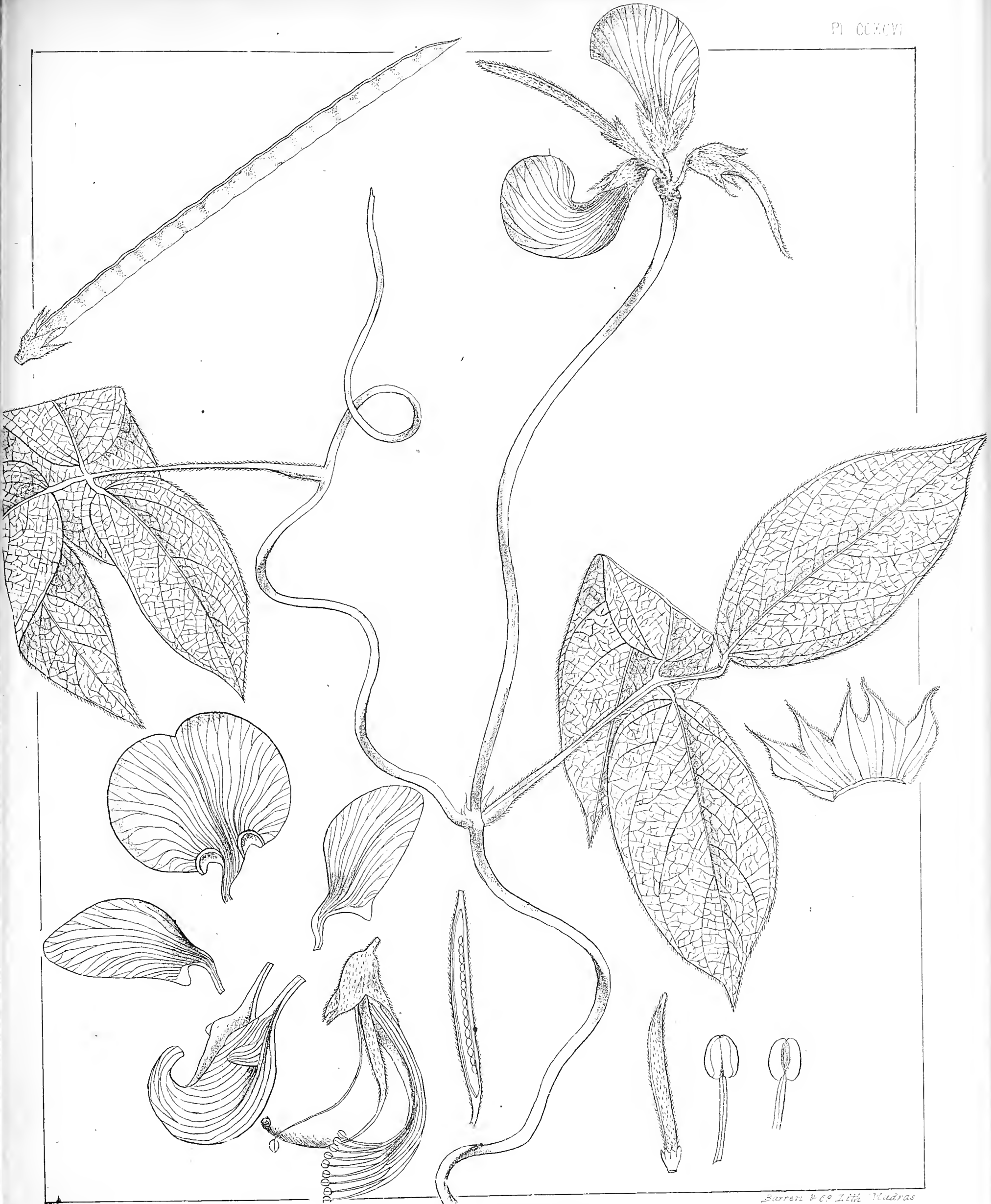




Gravados del

*Mollisia guianensis* Mo





*Vigna Wightii* Benth









Gaudieri del

*Sonchila gaudieri* Koe.

Borreria del Museo de Historia Natural





